TABLE OF CONTENTS

VOLUME 84, 2001

January [1]

Articles

Processing Science

Relationship between Microstructure and Mechanical Performance of a 70% Silicon Nitride–30% Barium Aluminum Silicate Self-Reinforced Ceramic Composite ☆ Feng Yu and Kenneth W. White 5

Microstructural Control of a 70% Silicon Nitride– 30% Barium Aluminum Silicate Self-Reinforced Composite ☆ Feng Yu, Nandakumar Nagarajan, Yi Fang, and Kenneth W. White 13

Kinetic Model for Crystallization in White Ceramic Glazes ☆ Agustin Escardino 23

Raman Study of the Interface between Hot-Pressed Silica Parts ☆ Alexandre E. Chmel, Andrej N. Smirnov, and Victor S. Shashkin 29

Fabrication of Dense Zirconia Electrolyte Films for Tubular Solid Oxide Fuel Cells by Electrophoretic Deposition ☆ Rajendra N. Basu, Clive A. Randall, and Merrilea J. Mayo 33

Influence of Green Formulation and Pyrolyzable Particulates on the Porous Microstructure and Sintering Characteristics of Tape Cast Ceramics ☆ Stephen F. Corbin, Joyce Lee, and Xin Qiao 41

Sol–Gel Processing and Characterization of Pure and Metal-Doped SnO_2 Thin Films ☆ Mauro Epifani, Marco Alvisi, Luciana Mirenghi, Gabriella Leo, Pietro Siciliano, and Lorenzo Vasanelli 48

Processing and Microstructure Development of Titanium Carbide–Nickel Aluminide Composites Prepared by Melt Infiltration/Sintering (MIS) ☆ Kevin P. Plucknett and Paul F. Becher 55

Aqueous Gel-Forming of Silicon Nitride Using Carrageenans ☆ Arnaldo J. Millán, M. Isabel Nieto, and Rodrigo Moreno 62

Oxygen Vacancies in Pure Tetragonal Zirconia Powders: Dependence on the Presence of Chlorine during Processing ☆ Evguenia Karapetrova, Roland Platzer, John A. Gardner, Erwin Torne, James A. Sommers, and William E. Evenson 65

Cyclic Infiltration of Porous Zirconia Preforms with a Liquid Solution of Mullite Precursor ☆ Yung-Jen Lin and Yi-Chi Chen 71

Low-Temperature Preparation and Size Effect of Strontium Barium Niobate Ultrafine Powder ☆ Sheng-Guo Lu, Chee-Leung Mak, and Kin-Hung Wong 79

Effect of Processing Parameters on Physical Properties of Cadmium Stannate Thin Films Prepared by a Dip-Coating Technique ☆ Radhouane Bel Hadj Tahar, Takayuki Ban, Yutaka Ohya, and Yasutaka Takahashi 85

Control of Phase and Pore Structure of Titania Powders Using HCl and NH_4OH Catalysts ☆ Ki Chang Song and Sotiris E. Pratsinis 92

Electric and Dielectric Properties

Relationship between the Bond Valence and the Temperature Coefficient of the Resonant Frequency in the Complex Perovskite $(Pb_{1-x}Ca_x)[Fe_{0.5}(Nb_{1-y}Ta_y)_{0.5}]O_3$ ☆ Heung Soo Park, Ki Hyun Yoon, and Eung Soo Kim 99

Mechanical, Thermal, and Chemical Properties

Thermal Shock of Layered Ceramic Structures with Crack-Deflecting Interfaces ☆ Luc J. Vandeperre, Annika Kristofferson, Elis Carlström, and William J. Clegg 104

Effect of Vacuum Heat Treatment on Electron-Beam-Irradiation-Cured Polycarbosilane Fibers ☆ Toshio Shimoo, Masahiro Ito, Kiyohito Okamura, and Michio Takeda 111

High-Temperature Strength Behavior of Synroc-C ☆ Bruno A. Latella and Tianshun Liu 117

Determination of Individual Fiber Failure in Fiber Bundles ☆ Samuel M. Toffoli and Richard L. Lehman 123

Influence of Cement Particle-Size Distribution on Early Age Autogenous Strains and Stresses in Cement-Based Materials ☆ Dale P. Bentz, Ole Mejlhede Jensen, Kurt Kielsgaard Hansen, John F. Olesen, Henrik Stang, and Claus-Jochen Haecker 129

Preparation and Properties of Hydrothermally Stable γ-Alumina Membranes ☆ Arian Nijmeijer, Henk Kruidhof, Rune Bredesen, and Henk Verweij 136

Crystal Chemistry and Stabilization in Air of Brannerite, UTi_2O_6 ☆ E. R. Vance, J. N. Watson, M. L. Carter, R. A. Day, and B. D. Begg 141

Misalignment-Induced Bending in Pin-Loaded Tensile-Creep Specimens ☆ Ralph F. Krause Jr., Sheldon M. Wiederhorn, and Jakob J. Kübler 145

Synthesis, Structure Determination, and Aqueous Durability of $Cs_2ZrSi_3O_9$ ☆ M. Lou Balmer, Yali Su, Hongwu Xu, Eric Bitten, David McCready, and Alexandra Navrotsky 153

Improved Resistance to Damage of Silicon Carbide-Whisker-Reinforced Silicon Nitride-Matrix Composites by Whisker-Oriented Alignment ☆ Chang-an Wang, Yong Huang, and Zhipeng Xie 161

Spectroscopic Properties and Thermal Stability of Er^{3+}-Doped Germanotellurite Glasses for Broadband Fiber Amplifiers ☆ Xian Feng, Setsuhisa Tanabe, and Teiichi Hanada 165

Microstructure and Phase Equilibria

Morphology and Phase Stability of Nitrogen–Partially Stabilized Zirconia (N-PSZ) ☆ Tai-Joo Chung, Jong-Sook Lee, Doh-Yeon Kim, Gyeung-Ho Kim, and Huesup Song 172

Defect Chemistry and Microstructure of Hydrothermal Barium Titanate ☆ Detlev F. K. Hennings, Christoph Metzmacher, and B. Seriyati Schreinemacher 179

Phase Diagram Studies in the System Tl_2O_3–BaO–CaO–CuO–Ag ☆ Peter J. Majewski, Arthur Jalowicki, Stefanie Kaesche, and Fritz Aldinger 183

PAC Characterization of Nontransformable Tetragonal t' Phase in Arc-Melted Zirconia–2.8 mol% Yttria Ceramics ☆ Agustín M. Rodríguez, María C. Caracoche, Patricia C. Rivas, Alberto F. Pasquevich, and Sergio R. Mintzer 188

Crystallization Behavior of Sol–Gel-Derived Strontium Barium Niobate Thin Films ☆ Junmo Koo, Jae Hyeok Jang, and Byeong-Soo Bae 193
Dislocation Loop Formation in Nonstoichiometric (Ba,Ca)TiO_3 and $BaTiO_3$ Ceramics ☆ Toshimasa Suzuki, Mitsuo Ueno, Yuji Nishi, and Masayuki Fujimoto 200
Effect of the Pb/Ti Source Ratio on the Crystallization of $PbTiO_3$ Thin Films Grown by Metalorganic Chemical Vapor Deposition at Low Temperature of 400°C ☆ Chae Hyun Wang and Doo Jin Choi 207
IR and XPS Studies on the Surface Structure of Poled ZnO–TeO_2 Glasses with Second-Order Nonlinearity ☆ Aiko Narazaki, Katsuhisa Tanaka, Kazuyuki Hirao, Tadanori Hashimoto, Hiroyuki Nasu, and Kanichi Kamiya 214
Discontinuous Dissolution of a Liquid Phase in $Ba(Ni_{1/3}Nb_{2/3})O_3$ Ceramics ☆ Jong-Keuk Park, Doh-Yeon Kim, and Duk Yong Yoon 218

Communications

Porous Mullite Preforms via Fused Deposition ☆ Raj Atisivan, Susmita Bose, and Amit Bandyopadhyay 221
Silicon Carbide Films by Laser Pyrolysis of Polycarbosilane ☆ Paolo Colombo, Alessandro Martucci, Oscar Fogato, and Paolo Villoresi 224
Drying and Rewetting of Mature Cement Pastes Studied through Positron Annihilation Lifetime Spectroscopy ☆ Giovanni Consolati, Giovanni Dotelli, and Fiorenza Quasso 227
Synthesis of Porous Ceramics with Complex Pore Structure by Freeze-Dry Processing ☆ Takayuki Fukasawa, Motohide Ando, Tatsuki Ohji, and Shuzo Kanzaki 230
Synthesis of CoO/Ni Composite Powders for Molten Carbonate Fuel Cells ☆ Takehisa Fukui, Hajime Okawa, Tadashi Hotta, Makio Naito, and Toyokazu Yokoyama 233
Permeable Porosity of Refractory Castables Evaluated by the Water-Expulsion Porosimetry Technique ☆ Murilo D. M. Innocentini and Victor C. Pandolfelli 236
Oxidation Behavior of Titanium Boride at Elevated Temperatures ☆ Young-Hag Koh, Seung-Yong Lee, and Hyoun-Ee Kim 239
Mechanochemical Synthesis and Electrochemical Properties of $LiMn_2O_4$ ☆ Heon-Jin Choi, Ki-Min Lee, Gyeung-Ho Kim, and June-Gunn Lee 242
Fabrication of Carbon/Silicon Carbide Composites by Isothermal Chemical Vapor Infiltration, Using the *In Situ* Whisker-Growing and Matrix-Filling Process ☆ Byung Jun Oh, Young Jin Lee, Doo Jin Choi, Gye Won Hong, Ji Yeon Park, and Won Ju Kim 245
Dynamic Permeability Behavior during Drying of Refractory Castables Based on Calcium-Free Alumina Binders ☆ Caue Ribeiro, Murilo D. M. Innocentini, and Victor C. Pandolfelli 248
Fabrication of Low-Porosity Indium Tin Oxide Ceramics in Air from Hydrothermally Prepared Powder ☆ Chandana P. Udawatte and Kazumichi Yanagisawa 251
Infrared Microscopy for Examination of Structure in Spray-Dried Granules and Compacts ☆ Keizo Uematsu, Nozomu Uchida, Zenji Kato, Satoshi Tanaka, Tadashi Hotta, and Makio Naito 254

February [2]

Articles

Processing Science

Using Nanoscaled Powder as an Additive in Coarse-Grained Powder ☆ Ralph Jörg Hellmig and Hans Ferkel 261
Organic Distributions in Dried Alumina Green Tape ☆ Jau-Ho Jean and Hong-Ren Wang 267
Fabrication of Long Lengths of Epitaxial Buffer Layers on Biaxially Textured Nickel Substrates Using a Continuous Reel-to-Reel Dip-Coating Unit ☆ M. Parans Paranthaman, Thomas G. Chirayil, Fred A. List, Xingtian Cui, Amit Goyal, Dominic F. Lee, Eliot D. Specht, Patrick M. Martin, Robert K. Williams, Donald M. Kroeger, Jonathan S. Morrell, David B. Beach, Ron Feenstra, and David K. Christen 273
Synthesis and Structure of Three-Dimensionally Ordered Graphitelike BC_2N Ternary Crystals ☆ Jeffrey P. Nicolich, Ferdinand Hofer, Gerhard Brey, and Ralf Riedel 279
Preparation of Dense Platinum-Yttria Stabilized Zirconia and Yttria Stabilized Zirconia Films on Porous $La_{0.9}Sr_{0.1}MnO_3$ (LSM) Substrates ☆ Zuoyan Peng and Meilin Liu 283
Roles of Poly(propylene glycol) during Solvent-Based Lamination of Ceramic Green Tapes ☆ Nitinat Suppakarn, Hatsuo Ishida, and James D. Cawley 289
Molten Salt Synthesis of Calcium Hydroxyapatite Whiskers ☆ A. Cüneyt Taş 295
Monolayer Packing of Submicrometer Ceramic Spheres by Employing a Langmuir–Blodgett Film of Dicarboxylic Acid ☆ Yasuhiro Shimizu, Kazuyuki Kawanabe, Yuji Takao, and Makoto Egashira 301
Solid Freeforming of Silicon Carbide by Inkjet Printing Using a Polymeric Precursor ☆ Matthew Mott and Julian R. G. Evans 307
Study on the Effects of Lanthanum Doping on the Microstructure and Dielectric Properties of $0.9Pb(Mg_{1/3}Nb_{2/3})O_3$–$0.1PbTiO_3$ ☆ Michael R. Winter, Steven M. Pilgrim, and Martine Lejeune 314
Nepheline and Carnegieite Ceramics from A-Type Zeolites by Microwave Heating ☆ Tatsuo Ohgushi, Kazushi Ishimaru, and Sridhar Komarneni 321
Electrophoretic Deposition of Zirconia on Porous Anodic Substrates ☆ Julia Will, Martin K. M. Hruschka, Lorenz Gubler, and Ludwig J. Gauckler 328

Electric and Dielectric Properties

Phase Stability and Ferroelectric Properties of Lead Strontium Zirconate Titanate Ceramics ☆ Yongjian Yu, Jinbiao Tu, and Raj N. Singh 333
Design of Ceramic Materials for Chemical Sensors: Effect of $SmFeO_3$ Processing on Surface and Electrical Properties ☆ Hiromichi Aono, Masaki Sato, Enrico Traversa, Masatomi Sakamoto, and Yoshihiko Sadaoka 341
Energy Transfer Process for the Blue Up-Conversion in Calcium Aluminate Glasses Doped with Tm^{3+} and Nd^{3+} ☆ Woon Jin Chung and Jong Heo 348

Mechanical, Thermal, and Chemical Properties
Thermal Conductivity of β-Si_3N_4: III, Effect of Rare-Earth (RE = La, Nd, Gd, Y, Yb, and Sc) Oxide Additives ☆ Mikito Kitayama, Kiyoshi Hirao, Koji Watari, Motohiro Toriyama, and Shuzo Kanzaki 353
Determination of Calcium/Phosphorus Atomic Ratio of Calcium Phosphate Apatites Using X-ray Diffractometry ☆ Sylvie Raynaud, Eric Champion, Didier Bernache-Assollant, and Jean-Paul Laval 359
In-Plane Fracture Resistance of a Crossply Fibrous Monolith ☆ John C. McNulty, Matthew R. Begley, and Frank W. Zok ... 367
Atomistic Simulation of Dopant Incorporation in Barium Titanate ☆ Maria Teresa Buscaglia, Vincenzo Buscaglia, Massimo Viviani, and Paolo Nanni 376
Thermal Expansion Kinetics: Method to Measure Permeability of Cementitious Materials: II, Application to Hardened Cement Pastes ☆ Hua Ai, J. Francis Young, and George W. Scherer 385
Intrinsically Formed Trivalent Titanium Ions in Sol–Gel Titania ☆ Eduardo Muñoz, José L. Boldú, Eduardo Andrade, Octavio Novaro, Xi. Bokhimi, Tessy López, and Ricardo Gómez 392
Neutron Diffraction Study of Ferroelasticity in a 3 mol% Y_2O_3–ZrO_2 ☆ Yuxiang Ma, Erich H. Kisi, and Shane J. Kennedy .. 399
Microstructure and Mechanical Properties of Sinter–Post-HIPed Si_3N_4–SiC Composites ☆ Jian-Feng Yang, Tohro Sekino, Yong-Ho Choa, Koichi Niihara, and Tatsuki Ohji 406
High-Temperature Mechanical Properties of SiC–$Mo_5(Si,Al)_3C$ Composites ☆ Qingshan Zhu and Kazuhisa Shobu 413

Microstructure and Phase Equilibria
Solubility of Magnesia in Polycrystalline Alumina at High Temperatures ☆ C. Greskovich and J. Anthony Brewer 420
Influence of Grain Phase on Slag Corrosion of Low-Cement Castable Refractories ☆ Hossain Sarpoolaky, Shaowei Zhang, Bernard Barry Argent, and William Edward Lee 426
Zinc Vanadates in Vanadium Oxide-Doped Zinc Oxide Varistors ☆ Huey-Hoon Hng, Kevin M. Knowles, and Paul A. Midgley 435
Luster Pottery from the Thirteenth Century to the Sixteenth Century: A Nanostructured Thin Metallic Film ☆ Josefina Pérez-Arantegui, Judit Molera, Angel Larrea, Trinitat Pradell, Marius Vendrell-Saz, Ilaria Borgia, Brunetto G. Brunetti, Franco Cariati, Paola Fermo, Marcello Mellini, Antonio Sgamellotti, and Cecilia Viti 442

Communications
Sodium Carbonate Flux Effects on the Luminescence Characteristics of $(Y_{0.5}Gd_{0.5})_2O_3$:Eu Phosphor Particles Prepared by Spray Pyrolysis ☆ Yun Chan Kang, Hyun Sook Roh, and Seung Bin Park 447
Apatite Formation on Calcium Phosphate Invert Glasses in Simulated Body Fluid ☆ Toshihiro Kasuga, Yoshimasa Hosoi, Masayuki Nogami, and Mitsuo Niinomi 450
Synthesis of Low-Dielectric Silica Aerogel Films by Ambient Drying ☆ Gun S. Kim, Sang H. Hyun, and Hyung H. Park 453
Effect of Magnesium Oxide on Faceted Vicinal (0001) Surface of Aluminum Oxide ☆ Chan Woo Park and Duk Yong Yoon 456
Synthesis of a Hydroxyapatite/Collagen/Chondroitin Sulfate Nanocomposite by a Novel Precipitation Method ☆ Sang-Hoon Rhee and Junzo Tanaka 459
Influence of Aluminum–Oxygen–Yttrium Solid Solution on the Aqueous Tribological Behavior of Silicon Nitride ☆ Takeshi Satoh, Shuji Sakaguchi, Kiyoshi Hirao, Motohiro Toriyama, and Shuzo Kanzaki 462
Mechanochemical Synthesis of Hydroxyapatite from Calcium Oxide and Brushite ☆ Bernard Yeong, Xue Junmin, and John Wang 465
Crystal Structure Refinement of $La_{0.683}(Ti_{0.95}Al_{0.05})O_3$ Perovskite by the Rietveld Method ☆ Roushown Ali, Masatomo Yashima, Masahiro Yoshimura, and Hideki Yoshioka 468
Diffusion Bonding of Silicon Nitride Using a Superplastic β-SiAlON Interlayer ☆ Rong-Jun Xie, Mamoru Mitomo, Gou-Dong Zhan, Li-Ping Huang, and Xi-Ren Fu 471
An Alternative Explanation for the Origin of the Resistivity Anomaly in La-Doped $BaTiO_3$ ☆ Finlay D. Morrison, Derek C. Sinclair, and Anthony R. West 474
Preparation of Li_2S–P_2S_5 Amorphous Solid Electrolytes by Mechanical Milling ☆ Akitoshi Hayashi, Shigenori Hama, Hideyuki Morimoto, Masahiro Tatsumisago, and Tsutomu Minami 477

Correction
Self-Catalyzed Synthesis of Organo-Silica Nanoparticles ☆ Raphael M. Ottenbrite, Jason S. Wall, and Junaid A. Siddiqui 480

March [3]
Articles
Processing Science
High-Surface-Area Alumina Ceramics Fabricated by the Decomposition of $Al(OH)_3$ ☆ Zhen-Yan Deng, Takayuki Fukasawa, Motohide Ando, Guo-Jun Zhang, and Tatsuki Ohji 485
Effect of the Growth Treatment on Two-Stage Nucleation Experiments ☆ Mark J. Davis 492
Preparation of Short Mullite Fibers from Kaolin via the Addition of Foaming Agents ☆ Keqin Li, Tadao Shimizu, and Kaoru Igarashi 497
Packing Density of Binary Mixtures of Wet Spheres ☆ Rui-Ping Zou, Chang-Lin Feng, and Ai-Bing Yu 504
Processing of Mullite–Aluminum Composites ☆ Raji Soundararajan, Gabe Kuhn, Raj Atisivan, Susmita Bose, and Amit Bandyopadhyay 509
Synthesis of Aluminum Oxide Platelets ☆ Richard F. Hill, Robert Danzer, and Robert T. Paine 514

Electric and Dielectric Properties
Microcontact Impedance Spectroscopy at Single Grain Boundaries in Fe-Doped $SrTiO_3$ Polycrystals ☆ Stefan Rodewald, Jürgen Fleig, and Joachim Maier 521
Characterization of Lanthanum-Doped Barium Titanate Ceramics Using Impedance Spectroscopy ☆ Finlay D. Morrison, Derek C. Sinclair, and Anthony R. West 531
Interactions and Chemistry of Defects at the Grain Boundaries of Ceramics ☆ Joo-Hwan Han and Doh-Yeon Kim 539

Mechanical, Thermal, and Chemical Properties
Cyclic Fatigue–Crack Propagation Behavior in Silicon Carbide: Long- and Small-Crack Behavior ☆ Yoon Soo Han, Do Kyung Kim, Christopher J. Gilbert, and Robert O. Ritchie 551

Energetics of Substituted Pollucites Along the $CsAlSi_2O_6$–$CsTiSi_2O_{6.5}$ Join: A High-Temperature Calorimetric Study ☆ Hongwu Xu, Alexandra Navrotsky, Mari Lou Balmer, Yali Su, and Eric R. Bitten 555
Brittle Fracture versus Quasi Plasticity in Ceramics: A Simple Predictive Index ☆ Young-Woo Rhee, Hae-Won Kim, Yan Deng, and Brian R. Lawn 561
Thermal Stability of Polycarbosilane-Derived Silicon Carbide Fibers under Reduced Pressures ☆ Toshio Shimoo, Hiroshi Takeuchi, and Kiyohito Okamura 566
Design and Fracture of Layered Al_2O_3/TZ3Y Composites Produced by Electrophoretic Deposition ☆ Benjamin Hatton and Patrick S. Nicholson 571
Oxidation Protection of MgO–C Refractories by Means of $Al_8B_4C_7$ ☆ Tianming Wang and Akira Yamaguchi 577
In Situ X-ray Diffraction and Young's Modulus Measurement during Heat Treatment of High-Alumina Cement Castables ☆ Emmanuel Nonnet, Nicolas Lequeux, Philippe Boch, Sally L. Colston, and Paul Barnes 583
Extraction of Weibull Parameters of Fiber Strength from Means and Standard Deviations of Failure Loads and Fiber Diameters ☆ Triplicane A. Parthasarathy 588
Short Crack *R*-Curves in Ferroelectric and Electrostrictive PLZT ☆ Wei Chen, Doru C. Lupascu, Jürgen Rödel, and Christopher S. Lynch 593
Rheological Behavior of Dilute SiAlON with or without Intergranular X-Phase ☆ Giuseppe Pezzotti, Kazuhiro Okamoto, and Ken'ichi Ota 598
Thermal Shock Behavior of Iron-Particle-Toughened Alumina ☆ Matthew Aldridge and Julie A. Yeomans 603

Microstructure and Phase Equilibria

Hydration Characteristics of Portland Cement after Heat Curing: I, Degree of Hydration of the Anhydrous Cement Phases ☆ Renhe Yang and John H. Sharp 608
Qualitative X-ray Diffraction Analysis of Metastable Tetragonal (t') Zirconia ☆ Iain R. Gibson and John T. S. Irvine 615
Anatase-to-Rutile Transformation in Titania Powders ☆ Pelagia I. Gouma and Michael J. Mills 619
Equilibrium Amorphous Silicon–Calcium–Oxygen Films at Interfaces in Copper–Alumina Composites Prepared by Melt Infiltration ☆ Christina Scheu, Gerhard Dehm, and Wayne D. Kaplan 623
Microstructural Evolution during Sintering of Aluminum Nitride Ceramics Doped with Alumina and Yttria ☆ Tatsuya Shirakami, Kazuyori Urabe, Hiromi Nakano, Takeshi Meguro, Katsutoshi Komeya, and Nam Heun Kim 631

Communications

Effect of Lead Content on the Structure and Electrical Properties of $Pb((Zn_{1/3}Nb_{2/3})_{0.5}(Zr_{0.47}Ti_{0.53})_{0.5})O_3$ Ceramics ☆ Huiqing Fan and Hyoun-Ee Kim 636
Improvement in Hydration Reactivity of α-Phase Belite by Remelting Reaction ☆ Koichiro Fukuda, Norihiko Wakamatsu, and Suketoshi Ito 639
Boron Carbide–Zirconium Boride *In Situ* Composites by the Reactive Pressureless Sintering of Boron Carbide–Zirconia Mixtures ☆ Adrian Goldstein, Ygal Geffen, and Ayala Goldenberg 642
Permeability of Refractory Castables at High Temperatures ☆ Murilo D. M. Innocentini, Maurício G. Silva, Bruno A. Menegazzo, and Victor C. Pandolfelli 645
Low-Temperature Reactive Sintering of 0.65PMN·0.35PT ☆ Seongtae Kwon, Edward M. Sabolsky, and Gary L. Messing 648
Film Synthesis of $Y_3Al_5O_{12}$ and $Y_3Fe_5O_{12}$ by the Spray–Inductively Coupled Plasma Technique ☆ Yoshihito Mizoguchi, Masahiro Kagawa, Yasuhiko Syono, and Toshio Hirai 651
Ethene/Ethane (C_2H_4/C_2H_6) Separation through an Inorganic–Organic Hybrid Membrane Containing Silver(I) Ions as Olefin Carriers, Using Poly(*N*-vinylpyrrolidone) as a Mediation Agent ☆ Caili Su, Koji Kuraoka, and Tetsuo Yazawa 654
Seeding of the Reaction-Bonded Aluminum Oxide Process ☆ Ender Suvaci and Gary L. Messing 657
Synthesis of $Pb(Mg_{1/3}Nb_{2/3})O_3$ in Excess Lead Oxide by Mechanical Activation ☆ Junmin Xue, John Wang, and Tripti M. Rao 660
In Situ Ultraviolet Raman Study on the Phase Transition of Hafnia up to 2085 K ☆ Hirotaka Fujimori, Masatomo Yashima, Masato Kakihana, and Masahiro Yoshimura 663
Influence of Washing on Zirconia Powder for Electrophoretic Deposition ☆ Benjamin D. Hatton and Yoshio Sakka 666
Sol–Gel Preparation of $BaTi_4O_9$ and $Ba_2Ti_9O_{20}$ ☆ Yebin Xu, Xiang Ming Chen, and Liangbin Wang 669
Mechanical Properties of Sputter-Deposited Titanium-Silicon-Carbon Films ☆ James E. Krzanowski and Sirma H. Koutzaki 672
Effect of Activated Carbon Bed on Binder Removal from Ceramic Injection Moldings ☆ Martin Trunec and Jaroslav Cihlár 675
Structural Evolution of Thermal-Sprayed Yttria-Stabilized ZrO_2 Thermal Barrier Coatings with Annealing—A Neutron Diffraction Study ☆ Tom Vogt, Brett A. Hunter, and John Thornton 678

April [4]

Articles

Processing Science

Influence of Plasma Spray Parameters on In-Flight Characteristics of ZrO_2–8 wt% Y_2O_3 Ceramic Particles ☆ Ahmet Kucuk, Rogerio S. Lima, and Christopher C. Berndt 685
Influence of Plasma Spray Parameters on Formation and Morphology of ZrO_2–8 wt% Y_2O_3 Deposits ☆ Ahmet Kucuk, Rogerio S. Lima, and Christopher C. Berndt 693
Water-Based Gelcasting of Surface-Coated Silicon Nitride Powder ☆ Yong Huang, Longjie Zhou, Qiang Tang, Zhipeng Xie, and Jinglong Yang 701
Seamless Joining of Silicon Nitride Ceramics ☆ Mani Gopal, Mark Sixta, Lutgard De Jonghe, and Gareth Thomas 708
Effect of Silica Nanoparticle Size on the Stability of Alumina/Silica Suspensions ☆ Matthew L. Fisher, Miroslav Colic, Masa P. Rao, and Fred F. Lange 713
Feedstock Formulations for Direct Consolidation of Porcelains with Polysaccharides ☆ Susana M. Olhero, Giuliano Tarì, and José M. F. Ferreira 719
Formation Mechanism of AlN–SiC Solid Solution by Combustion Nitridation in Si_3N_4–Si-Al-C System ☆ Dariusz Kata, Kenshiro Shirai, Manshi Ohyanagi, and Zuhair A. Munir 726
Determination and Control of Metallic Impurities in Alumina Deposits Obtained by Aqueous Electrophoretic Deposition ☆ Begoña Ferrari, Juan Carlos Fariñas, and Rodrigo Moreno 733

Electric and Dielectric Properties

Evolution of Impedance Spectra during Debonding and Pullout of Single Steel Fibers from Cement ☆ Josep M. Torrents, Thomas C. Easley, K. T. Faber, Thomas O. Mason, and Surendra P. Shah 740

Structure and Magnetic Properties of $La_{0.7}Ca_{0.3}MnO_{3-\delta}$ for $(3 - \delta) < 3.0$ ☆ Ying Hai Li, Françoise Damay, Lesley F. Cohen, Kodenkandath A. Thomas, Akther K. M. Hossain, and Judith L. MacManus-Driscoll 747

Contribution of Structure to Temperature Dependence of Resonant Frequency in the $(1 - x)La(Zn_{1/2}Ti_{1/2})O_3 \cdot xATiO_3$ (A = Ca, Sr) System ☆ Seo-Yong Cho, Hyuk-Joon Youn, Hyo-Jong Lee, and Kug Sun Hong 753

Dielectric Properties of $Ba(Zr,Ti)O_3$-Based Ferroelectrics for Capacitor Applications ☆ Ulrich Weber, Georg Greuel, Ulrich Boettger, Sophie Weber, Detlev Hennings, and Rainer Waser 759

Mechanical, Thermal, and Chemical Properties

Toughened Oxide Composites Based on Porous Alumina-Platelet Interphases ☆ Sang-Jin Lee and Waltraud M. Kriven 767

Thermal Softening Behavior and Application to Transparent Thick Films of Poly(benzylsilsesquioxane) Particles Prepared by the Sol–Gel Process ☆ Atsunori Matsuda, Teruyuki Sasaki, Koichi Hasegawa, Masahiro Tatsumisago, and Tsutomu Minami 775

Control of the Thermal Expansion of Strontium-Doped Lanthanum Chromite Perovskites by B-site Doping for High-Temperature Solid Oxide Fuel Cell Separators ☆ Masashi Mori, Yoshiko Hiei, and Tohru Yamamoto 781

Influence of Strong Fiber/Coating Interfaces on the Mechanical Behavior and Lifetime of Hi-Nicalon/$(PyC/SiC)_n$/SiC Minicomposites ☆ Sebastien Bertrand, Rene Pailler, and Jacques Lamon 787

Dye Impregnation Method for Revealing Machining Crack Geometry ☆ Wataru Kanematsu, Mutsuo Sando, Lewis K. Ives, Ryna Marinenko, and George D. Quinn 795

Geometry Optimization and Ground-State Properties of Complex Ceramic Oxides ☆ Lizhi Ouyang and Wai-Yim Ching 801

Effects of Particle Size and Molecular Weight of Polyethylenimine on Properties of Nanoparticulate Silicon Dispersions ☆ Astrid Dietrich and Achim Neubrand 806

Microstructure and Phase Equilibria

Secondary Phases in Hot-Pressed Aluminum-Boron-Carbon–Silicon Carbide ☆ Xiao Feng Zhang, Mark E. Sixta, and Lutgard C. De Jonghe 813

Microstructural Investigations of Barium Titanate-Based Material for Base Metal Electrode Ceramic Multilayer Capacitor ☆ Christof Metzmacher and Knuth Albertsen 821

Microstructure and Heat Transfer Phenomena in Ceramic Thermal Barrier Coatings ☆ Paolo Scardi, Matteo Leoni, Federico Cernuschi, and Angelamaria Figari 827

^{125}Te, ^{27}Al, and ^{71}Ga NMR Study of M_2O_3–TeO_2 (M = Al and Ga) Glasses ☆ Shinichi Sakida, Satoshi Hayakawa, and Toshinobu Yoko 836

Microstructure of Ti(CN)–WC–NbC–Ni Cermets ☆ Sun-Yong Ahn, Seong-Won Kim, and Shinhoo Kang 843

Sintering and Microstructure Modification of Mullite/Zirconia Composites Derived from Silica-Coated Alumina Powders ☆ Viktor Yaroshenko and David S. Wilkinson 850

Exuding Liquid from Grain Boundaries in Alumina ☆ N. Ravishankar and C. Barry Carter 859

Communications

Mechanochemical Synthesis of Lanthanum Oxyfluoride from Lanthanum Oxide and Lanthanum Fluoride ☆ Jaeryeong Lee, Qiwu Zhang, and Fumio Saito 863

Measuring Interphase Recession by Fiber Push-In Testing ☆ Charles A. Lewinsohn, Charles H. Henager Jr., Russell H. Jones, and Jeffrey I. Eldridge 866

Hydrolysis Deposition of Thin Films of Antimony-Doped Tin Oxide ☆ Koji Tsukuma, Tomoyuki Akiyama, and Hiroaki Imai 869

Robocast $Pb(Zr_{0.95}Ti_{0.05})O_3$ Ceramic Monoliths and Composites ☆ Bruce A. Tuttle, James E. Smay, Joseph Cesarano III, James A. Voigt, Timothy W. Scofield, Walter R. Olson, and Jennifer A. Lewis 872

Reaction and Formation of Crystalline Silicon Oxynitride in Si–O–N Systems under Solid High Pressure ☆ Ya-Li Li, Fen Zheng, Yong Liang, Xian-Feng Ma, Suo-Jing Cui, and Takamasa Ishigaki 875

Investigation of the Formation of Cristobalite from the Diatomaceous Clay *Moler* Using Powder X-ray Diffractometry Data and Profile Refinement Methods ☆ Axel Nørlund Christensen, Britta Lundtoft, and Ian C. Madsen 878

Fracture Behavior of SiC-Whisker-Reinforced Barium Aluminosilicate Glass-Ceramic Matrix Composites ☆ Feng Ye, Jue Ming Yang, Li Tong Zhang, Wan Cheng Zhou, Yu Zhou, and Ting Chuan Lei 881

R-Curve Behavior of *In Situ* Toughened α-SiAlON Ceramics ☆ Misha Zenotchkine, Roman Shuba, Joo Sun Kim, and I-Wei Chen 884

Boron Nitride–Aluminum Nitride Ceramic Composites Fabricated by Transient Plastic Phase Processing ☆ Jihong Cheng, Zhaoqiang Zeng, Chongjun Wu, Xiaoqing Hu, and Hezhuo Miao 887

Synthesis and Microstructural Characterization of Unsupported Nanocrystalline Zirconia Thin Films ☆ Brian P. Gorman and Harlan U. Anderson 890

Pressureless Sintering and Properties of Titanium Diboride Ceramics Containing Chromium and Iron ☆ Shin H. Kang, Deug J. Kim, Eul S. Kang, and Seung S. Baek 893

Effect of Interfacial Reaction on the Thermal Conductivity of Al–SiC Composites with SiC Dispersions ☆ Chihiro Kawai ... 896

Etching for Microstructural Observation of Cemented Submicrometer-Sized Carbides ☆ Sug-Woo Jung, Joosun Kim, and Suk-Joong L. Kang 899

Effect of Heating Rate on the Sintering Behavior and the Piezoelectric Properties of Lead Zirconate Titanate Ceramics ☆ Jungho Ryu, Jong-Jin Choi, and Hyoun-Ee Kim 902

May [5]

Articles

Processing Science

One-Step Synthesis and Consolidation of Nanophase Iron Aluminide ☆ Frédéric Bernard, Frédéric Charlot, Eric Gaffet, and Zuhair A. Munir 910

Effect of Heating Rates on the Synthesis of Al_2O_3–SiC Composites by the Self-Propagating High-Temperature Synthesis (SHS) Technique ☆ Lokesh Chandra Pathak, Debajyoti Bandyopadhyay, Srinivasan Srikanth, Swapan Kumar Das, and P. Ramachandrarao 915
High-Temperature Morphological Evolution of Lithographically Introduced Cavities in Silicon Carbide ☆ Takayuki Narushima and Andreas M. Glaeser 921
Phase Formation and Stability in Reactively Sputter Deposited Yttria-Stabilized Zirconia Coatings ☆ Zhiqiang Ji, J. Allen Haynes, Edgar Voelkl, and J. Michael Rigsbee 929
Fabrication and Characterization of γ-$LiAlO_2$ Matrices Using an Aqueous Tape-Casting Process ☆ Jin Y. Cho, Sang H. Hyun, and Seong A. Hong 937
Permeability of Porous Ceramics Considering the Klinkenberg and Inertial Effects ☆ Murilo D. M. Innocentini and Victor C. Pandolfelli 941
Effect of β-to-α Phase Transformation on the Microstructural Development and Mechanical Properties of Fine-Grained Silicon Carbide Ceramics ☆ Guo-Dong Zhan, Rong-Jun Xie, Mamoru Mitomo, and Young-Wook Kim 945
Flame Spray Pyrolysis of Precursors as a Route to Nano-mullite Powder: Powder Characterization and Sintering Behavior ☆ Rita Baranwal, Maria P. Villar, Rafael Garcia, and Richard M. Laine 951
Dense Layered Molybdenum Disilicide–Silicon Carbide Functionally Graded Composites Formed by Field-Activated Synthesis ☆ Ellen M. Carrillo-Heian, R. Douglas Carpenter, Glaucio H. Paulino, Jeffery C. Gibeling, and Zuhair A. Munir 962
Preparation of Nanosized Perovskite-Type $LaMnO_3$ Powders Using the Thermal Decomposition of a Heteronuclear Complex, $LaMn(dhbaen)(OH)(NO_3)(H_2O)_4$ ☆ Hiromichi Aono, Mioko Tsuzaki, Akihiro Kawaura, Masatomi Sakamoto, Enrico Traversa, and Yoshihiko Sadaoka 969
Catalytically Assisted Self-Propagating High-Temperature Synthesis of Tantalum Carbide Powders ☆ Troy Kim and Margaret S. Wooldridge 976
Electric-Field Effects on Sintering and Reaction to Form Aluminum Titanate from Binary Alumina–Titania Sol–Gel Powders ☆ Lia A. Stanciu, Joanna R. Groza, Vladimir Y. Kodash, Maria Crisan, and Maria Zaharescu 983
Effects of Zirconium Oxide on the Reaction Bonding of Aluminum Oxide ☆ Paul M. Sheedy, Hugo S. Caram, Helen M. Chan, and Martin P. Harmer 986
Effect of the Interparticle Pair Potential on the Rheological Behavior of Zirconia Powders: II, The Influence of Chem-Adsorbed Silanes ☆ Sascha Klein, Matthew Fisher, George Franks, Miroslave Colic, and Fred Lange 991

Electric and Dielectric Properties

Electromechanical Properties of a Ceramic d_{31}**-Gradient Flextensional Actuator** ☆ Xiaoping Li, James S. Vartuli, David L. Milius, Ilhan A. Aksay, Wan Y. Shih, and Wei-Heng Shih 996
Bulk Phase Relations, Conductivity, and Transparency in Novel Bixbyite Transparent Conducting Oxide Solution in the Cadmium-Indium-Tin Oxide System ☆ Daniel R. Kammler, Thomas O. Mason, and Kenneth R. Poeppelmeier 1004

Mechanical, Thermal, and Chemical Properties

Influence of Dopant Concentration on Creep Properties of Nd_2O_3-Doped Alumina ☆ Chong-Min Wang, Junghyun Cho, Helen M. Chan, Martin P. Harmer, and Jeffrey M. Rickman 1010
Behavior of Paramagnetic Iron during the Thermal Transformations of Kaolinite ☆ Amédée Djemai, Etienne Balan, Guillaume Morin, Giancarlo Hernandez, Jean Claude Labbe, and Jean Pierre Muller 1017
Cation Effects on Anion Distributions in Aluminophosphate Glasses ☆ EzzEldin Metwalli, Richard K. Brow, and Frederick S. Stover 1025
Microstructure and Mechanical Properties of Silicon Nitride Materials Fabricated from SHS Powders ☆ Angel De Pablos, Joaquin Bermudo, and Maria Isabel Osendi 1033
Influence of Tetragonality on Tetragonal-to-Monoclinic Phase Transformation during Hydrothermal Aging in Plasma-Sprayed Yttria-Stabilized Zirconia Coatings ☆ Kazuhiro Yasuda, Yasuhiro Goto, and Hiromitsu Takeda 1037
Mechanical Properties of Two Plain-Woven Chemical Vapor Infiltrated Silicon Carbide-Matrix Composites ☆ Torben K. Jacobsen and Povl Brøndsted 1043
Creep Viscosity and Stress Relaxation of Gel-Derived Silicon Oxycarbide Glasses ☆ Tanguy Rouxel, Gian-Domenico Soraru, and Jean Vicens 1052
Temperature and Stress Distributions in a Hollow Cylinder of Functionally Graded Material: The Case of Temperature-Independent Material Properties ☆ Hideo Awaji and Ramasamy Sivakumar 1059
Contact-induced Damage in Ceramic Coatings on Compliant Substrates: Fracture Mechanics and Design ☆ Young-Woo Rhee, Hae-Won Kim, Yan Deng, and Brian R. Lawn 1066

Microstructure and Phase Equilibria

Phase Separation in an SiCO Glass Studied by Transmission Electron Microscopy and Electron Energy-Loss Spectroscopy ☆ Hans-Joachim Kleebe, Christian Turquat, and Gian Domenico Sorarù 1073
Titanium Incorporation in Zn_2TiO_4 Spinel Ceramics ☆ Hyo Tae Kim, Yoonho Kim, Matjaz Valant, and Danilo Suvorov 1081
Crystallization of Sol–Gel-Derived Barium Strontium Titanate Thin Films ☆ Maria C. Gust, Leslie A. Momoda, Neal D. Evans, and Martha L. Mecartney 1087
Phase Diagram Studies in the Systems La_2O_3–SrO–Ga_2O_3, La_2O_3–MgO–Ga_2O_3, and SrO–MgO–Ga_2O_3 at 1400°C in Air ☆ Peter J. Majewski, Michael Rozumek, Heike Schluckwerder, and Fritz Aldinger 1093
Solubility of Platinum and Rhodium in Lime–Alumina–Silica Melts at 1700 K ☆ Pierre Dable, Michel Allibert, Jean Claude Poignet, and Jean Amosse 1097
Effect of Composition on Microstructural Development in MgO–Al_2O_3–SiO_2 Glass-Ceramics ☆ Shiang-Po Hwang and Jenn-Ming Wu 1108
Hydration Characteristics of Portland Cement after Heat Curing: II, Evolution of Crystalline Aluminate-Bearing Hydrates ☆ Renhe Yang and John H. Sharp 1113
Interactions between Clay Bodies and Lead Glazes ☆ Judit Molera, Trinitat Pradell, Nati Salvadó, and Màrius Vendrell-Saz 1120
Raman Study of Hi-Nicalon-Fiber-Reinforced Celsian Composites: I, Distribution and Nanostructure of Different Phases ☆ Gwénaël Gouadec, Philippe Colomban, and Narottam P. Bansal 1129
Raman Study of Hi-Nicalon-Fiber-Reinforced Celsian Composites: II, Residual Stress in Fibers ☆ Gwénaël Gouadec, Philippe Colomban, and Narottam P. Bansal 1136

Effect of Coarse-Powder Portion on Abnormal Grain Growth during Hot Pressing of Commercial-Purity Alumina Powder ☆ Seong-Jai Cho, Yun-Cheol Lee, Kyung-Jin Yoon, Jong-Jip Kim, Jun-Hee Hahn, Hyun-Min Park, and Masaaki Yanagisawa 1143
Defect Structure and Electrical Properties of $La_{1-y}Sr_yFe_{1-x}Al_xO_{3-\delta}$ ☆ Danjela Kuščer, Darko Hanžel, Janez Holc, Marko Hrovat, and Drago Kolar 1148
Characterization of Liquid Exsolved by Remelting Reaction of Belite ☆ Koichiro Fukuda, Ayari Takeda, Akira Yamaguchi, Shinobu Hashimoto, and Hideto Yoshida 1155

Communications
Surprising Results of a Study on the Plasticity in Strontium Titanate ☆ Dieter Brunner, Shahram Taeri-Baghbadrani, Wilfried Sigle, and Manfred Rühle 1161
Nanoindentation of a Polymer-Derived Amorphous Silicon Carbonitride Ceramic ☆ Dušan Galusek, Frank L. Riley, and Ralf Riedel 1164
Effect of Oxygen Vacancies on the Hot Hardness of Mullite ☆ James E. Pitchford, Robert J. Stearn, Anthony Kelly, and William J. Clegg 1167
Crystal Structure of Metastable Tetragonal Zirconia up to 1473 K ☆ Naoki Igawa and Yoshinobu Ishii 1169
Double Injection Synthesis and Dispersion of Submicrometer Barium Titanyl Oxalate Tetrahydrate ☆ R. Allen Kimel, Vladimir Ganine, and James H. Adair 1172
Microstructure of a Molybdenum Nitride Layer Formed by Nitriding Molybdenum Metal ☆ Masahiro Nagae, Tetsuo Yoshio, Yoshito Takemoto, and Jun Takada 1175
Thermal Decomposition of Titanium Alkoxide and Silicate Ester in Organic Solvent: A New Method for Synthesizing Large-Surface-Area, Silica-Modified Titanium(IV) Oxide of High Thermal Stability ☆ Hiroshi Kominami, Masaaki Kohno, Yukino Matsunaga, and Yoshiya Kera 1178
Thermal Treatment of Titanate Derivatives Synthesized by Ion-Exchange Reaction ☆ Myeong-Heon Um, Chul-Tae Lee, Hidehiro Kumazawa 1181
Investigation of Magnetic Force for Barium and Strontium Ferrites ☆ Ardeshir Hosseinpour and Abdolnaser Zakery 1184
Generalized Titanate Ceramic Waste Form for Advanced Purex Reprocessing ☆ Ewan R. Maddrell 1187
Effective Medium Theory of the Porosity Dependence of Bulk Moduli ☆ Ronald G. Munro 1190

June [6]
Articles
Processing Science
Microwave Effects in Lead Zirconium Titanate Synthesis: Enhanced Kinetics and Changed Mechanisms ☆ Balasubramaniam Vaidhyanathan, Anirudh P. Singh, Dinesh K. Agrawal, Thomas R. Shrout, Rustum Roy, and Suman Ganguly 1197
Preparation of Hydroxyapatite Lathlike Particles Using High-Speed Dispersing Equipment ☆ George C. Koumoulidis, Tiberius C. Vaimakis, Antonios T. Sdoukos, Nikos K. Boukos, and Christos C. Trapalis 1203
Synthesis of Dense TiB_2–TiN Nanocrystalline Composites through Mechanical and Field Activation ☆ Jae Won Lee, Zuhair A. Munir, Masachika Shibuya, and Manshi Ohyanagi 1209
Dynamic Rheology of Agar Gel Based Aqueous Binders ☆ Kyriakos C. Labropoulos, Sriram Rangarajan, Dale E. Niesz, and Stephen C. Danforth 1217
Mechanical-Activation-Triggered Gibbsite-to-Boehmite Transition and Activation-Derived Alumina Powders ☆ Chiang Chye Yong and John Wang 1225
Effect of Acrylic–Styrene Copolymer Chemical Structure on the Properties of Ceramic Tapes Obtained by Tape Casting ☆ Mikolaj Szafran and Gabriel Rokicki 1231
Conversion of Oak to Cellular Silicon Carbide Ceramic by Gas-Phase Reaction with Silicon Monoxide ☆ Evelina Vogli, Joydeb Mukerji, Christiane Hoffman, Ralf Kladny, Heino Sieber, and Peter Greil 1236
Adsorption of Hydroxypropyl Methyl Cellulose in an Aqueous System Containing Multicomponent Oxide Particles ☆ Constance B. Sawyer and James S. Reed 1241
Heterocoagulation in Ionically Stabilized Mixed-Oxide Colloidal Dispersions in Ethanol ☆ Gonghou Wang and Patrick S. Nicholson 1250
Bimodal Ceramic Ink for Continuous Ink-Jet Printer Plasma Spraying ☆ Philip Blazdell and Seiji Kuroda 1257

Electric and Dielectric Properties
Pressure-Induced Phase Transformation of Controlled-Porosity $Pb(Zr_{0.95}Ti_{0.05})O_3$ Ceramics ☆ Bruce A. Tuttle, Pin Yang, John H. Gieske, James A. Voigt, Timothy W. Scofield, David H. Zeuch, and Walter R. Olson 1260
Effect of Substitution of Manganese for Iron on the Structure and Electrical Properties of Yttrium Ferrite ☆ Xueqiang Cao, Chan-Soo Kim, and Han-Ill Yoo 1265
Positive Temperature Coefficient of Resistivity Effect in Highly Donor-Doped Barium Titanate ☆ Darko Makovec, Nina Ule, and Miha Drofenik 1273
Dielectric Properties of the Perovskite System $Pb(Mg_{1/3}Nb_{2/3})O_3$–$PbTiO_3$ Modified by $Pb(Mg_{1/3}Ta_{2/3})O_3$ and $Pb(Zn_{1/3}Nb_{2/3})O_3$ ☆ Dong-Hwan Suh, Dong-Ha Lee, and Nam-Kyoung Kim 1281
Influence of Copper(II) Oxide Additions to Zinc Niobate Microwave Ceramics on Sintering Temperature and Dielectric Properties ☆ Dong-Wan Kim, Kyung Hyun Ko, and Kug Sun Hong 1286
Effects of Calcium Substitution on the Structural and Microwave Dielectric Characteristics of $[(Pb_{1-x}Ca_x)_{1/2}La_{1/2}](Mg_{1/2}Nb_{1/2})O_3$ Ceramics ☆ Chin-Lin Liu and Tai-Bor Wu 1291

Mechanical, Thermal, and Chemical Properties
Thickness Alteration of Grain-Boundary Amorphous Films during Creep of a Multiphase Silicon Nitride Ceramic ☆ Qiang Jin, David S. Wilkinson, George C. Weatherly, William E. Luecke, and Sheldon M. Wiederhorn 1296
Long-Term Behavior and Application Limits of Plasma-Sprayed Zirconia Thermal Barrier Coatings ☆ Petra A. Langjahr, Rainer Oberacker, and Michael J. Hoffmann 1301
Investigation of Thermal Shock in a High-Temperature Refractory Ceramic: A Fracture Mechanics Approach ☆ Winston O. Soboyejo, Christopher Mercer, Jason Schymanski, and Sieger R. van der Laan 1309

Calculating the Thermal Conductivity of Heated Powder Compacts ☆ Amikam Birnboim, Tayo Olorunyolemi, and Yuval Carmel 1315
Development of Surface Compressive Stresses in Zirconia–Alumina Composites by an Ion-Exchange Process ☆ Guang-Yong Lin and Anil V. Virkar 1321
Effect of Shear Damage on the Fracture Behavior of Carbon–Carbon Composites ☆ Ken Goto, Hiroshi Hatta, Hirotsugu Takahashi, and Hiroyuki Kawada 1327
Influence of Thermal Conductivity and Fracture Toughness on the Thermal Shock Resistance of Alumina–Silicon-Carbide-Whisker Composites ☆ Marianne I. K. Collin and David J. Rowcliffe 1334

Microstructure and Phase Equilibria

Habit Modifications of SnO_2 Crystals in SnO_2–Cu_2O Flux System in the Presence of Trivalent Impurity Cations ☆ Fumio Kawamura, Itaru Yasui, Masayuki Kamei, and Ichiro Sunagawa 1341
Relationship between Microstructure and Fracture Toughness of Toughened Silicon Carbide Ceramics ☆ Sung-Gu Lee, Young-Wook Kim, and Mamoru Mitomo 1347
Devitrification Kinetics and Mechanism of K_2O–CaO–SrO–BaO–B_2O_3–SiO_2 Glass-Ceramic ☆ Jau-Ho Jean, Yu-Ching Fang, Steve X. Dai, and David L. Wilcox, Sr. 1354
Structure and Chemistry of Yttria-Stabilized Cubic-Zirconia Symmetric Tilt Grain Boundaries ☆ Elizabeth C. Dickey, Xudong Fan, and Stephen J. Pennycook 1361
Phase Relations and Volume Changes of Hafnia under High Pressure and High Temperature ☆ Osamu Ohtaka, Hiroshi Fukui, Taichi Kunisada, Tomoyuki Fujisawa, Kenichi Funakoshi, Wataru Utsumi, Tetsuo Irifune, Koji Kuroda, and Takumi Kikegawa 1369
Microstructure of a Complex Oxide, $Er_2Mn_{2/3}Mo_{4/3}O_7$, with a Pyrochlore-Related Structure ☆ Hiromi Nakano and Naoki Kamegashira 1374
Three-Dimensional Simulation of Grain Growth in the Presence of Mobile Pores ☆ Veena Tikare, Mark A. Miodownik, and Elizabeth A. Holm 1379

Communications

Effect of Surface Impurities on the Microstructure Development during Sintering of Alumina ☆ Tae-Wook Sone, Joo-Hwan Han, Seong-Hyeon Hong, and Doh-Yeon Kim 1386
Synthesis of Cerium α-SiAlON with Nuclei Addition ☆ Chang-Meng Wang, Mamoru Mitomo, Fan-Fang Xu, Naoto Hirosaki, and Yoshio Bando 1389
Fabrication of Textured Alumina by High-Temperature Deformation ☆ Yu-ichi Yoshizawa, Motohiro Toriyama, and Shuzo Kanzaki 1392
Fabrication of Porous Ceramics with Unidirectionally Aligned Continuous Pores ☆ Guo-Jun Zhang, Jian-Feng Yang, and Tatsuki Ohji 1395
Pore–Boundary Separation Behavior during Sintering of Pure and Bi_2O_3-Doped ZnO Ceramics ☆ Jung-Hae Choi, Nong-Moon Hwang, and Doh-Yeon Kim 1398

July [7]

Articles

Processing Science

Mechanical Properties of Dry-Pressed Alumina Green Bodies ☆ Tamara J. Carneim and David J. Green 1405
Electrokinetic Properties of Nanosized SiC Particles in Highly Concentrated Electrolyte Solutions ☆ Sheng-Chang Wang and Wen-Cheng J. Wei 1411
Potassium Lithium Niobate Films Derived from Aqueous Precursor Solution ☆ Satomi Ono, Noriaki Yamada, and Shin-ichi Hirano 1415
Fabrication and Characterization of Pyroelectric $Ba_{0.8}Sr_{0.2}TiO_3$ Thin Films by a Sol–Gel Process ☆ Jian-Gong Cheng, Jun Tang, Xiang-Jian Meng, Shao-Ling Guo, Jun-Hao Chu, Min Wang, Hong Wang, and Zhuo Wang 1421
Preparation of Nickel Powders by Spray Pyrolysis of Nickel Formate ☆ Bin Xia, I. Wuled Lenggoro, and Kikuo Okuyama 1425
Synthesis and Processing of Barium Hexaaluminogallates ☆ Toshiaki Yamaguchi, Wataru Sakamoto, Toshinobu Yogo, and Shin-ichi Hirano 1433
Cadmium Sulfide Aggregates through Reverse Micelles ☆ Minati Chatterjee and Amitava Patra 1439
Vaporization and Corrosion of Refractories in the Presence of Pressurized Pulverized Coal Combustion Slag ☆ Peter Biedenkopf, Thomas Karwath, Dietmar Kobertz, Manisha Rane, Egbert Wessel, Klaus Hilpert, and Lorenz Singheiser 1445
Synthesis of Ultrafine Ceria Powders by Mechanochemical Processing ☆ Takuya Tsuzuki and Paul G. McCormick 1453
Freeze Casting of Aqueous Alumina Slurries with Glycerol ☆ Stephen W. Sofie and Fatih Dogan 1459
Microstructural Evolution of Transparent PLZT Ceramics Sintered in Air and Oxygen Atmospheres ☆ Jong-Jin Choi, Jungho Ryu, and Hyoun-Ee Kim 1465
Formation of Barrier Ribs for Plasma Display Panel via Roll Forming of Green Tapes ☆ Yong-Seog Kim, Seog-Young Lee, Soon-Kug Hong, and Hyung-Jo Jeon 1470
In Situ Reaction Synthesis of Silicon Carbide–Boron Nitride Composites ☆ Guo-Jun Zhang and Tatsuki Ohji 1475
Influence of the Compositional Profile of Functionally Graded Material on the Crack Path under Thermal Shock ☆ Takao Fujimoto and Naotake Noda 1480

Electric and Dielectric Properties

Preparation, Characterization, and Microwave Properties of $RETiNbO_6$ (RE = Ce, Pr, Nd, Sm, Eu, Gd, Tb, Dy, Y, and Yb) Dielectric Ceramics ☆ Mailadil T. Sebastian, Sam Solomon, Ravindran Ratheesh, Jacob George, and Pezholil Mohanan 1487
Electrical Properties of Boron Nitride Matrix Composites: I, Analysis of McLachlan Equation and Modeling of the Conductivity of Boron Nitride–Boron Carbide and Boron Nitride–Silicon Carbide Composites ☆ Julie Runyan, Rosario A. Gerhardt, and Robert Ruh 1490
Electrical Properties of Boron Nitride Matrix Composites: II, Dielectric Relaxations in Boron Nitride–Silicon Carbide Composites ☆ Julie Runyan, Rosario A. Gerhardt, and Robert Ruh 1497
Gas-Sensing Properties of Nanocrystalline WO_3 Films Made by Advanced Reactive Gas Deposition ☆ Jose L. Solis, Anders Hoel, Laszlo B. Kish, Claes G. Granqvist, Sami Saukko, and Vilho Lantto 1504

Mechanical, Thermal, and Chemical Properties
Advanced Alumina Composites Reinforced with Titanium-Based Alloys ☆ Robert Günther, Thomas Klassen, Birte Dickau, Frank Gärtner, Arno Bartels, and Rüdiger Bormann 1509
Fracture Resistance of Highly Textured Alumina ☆ Peyton W. Hall, J. Steven Swinnea, and Desiderio Kovar 1514
Measurement of High-Temperature Elastic Properties of Ceramics Using a Laser Ultrasonic Method ☆ Takahiro Matsumoto, Tetsuro Nose, Yasuaki Nagata, Katsuhiro Kawashima, Tastuya Yamada, Hidetoshi Nakano, and Satoshi Nagai 1521
Evaluation of Porous ZrO_2–SiO_2 and Monazite Coatings Using Nextel™ 720-Fiber-Reinforced Blackglas™ Minicomposites ☆ Triplicane A. Parthasarathy, Emmanuel E. Boakye, Kristin A. Keller, and Randall S. Hay 1526
Electrochemical Stability of Strontium-Doped Ceria Electrolyte in Solid-Oxide Fuel Cell Applications ☆ Christopher E. Milliken, Sivaraman Guruswamy, and Ashok C. Khandkar 1533
Crystallographic Texture and Thermal Conductivity of Zirconia Thermal Barrier Coatings Deposited on Different Substrates ☆ Paul Heydt, Chongyang Luo, and David R. Clarke 1539
Strength Degradation and Failure Mechanisms of Electron-Beam Physical-Vapor-Deposited Thermal Barrier Coatings ☆ James A. Ruud, Andi Bartz, Marcus P. Borom, and Curtis A. Johnson 1545
Computer Simulation of Dissociative Adsorption of Water on the Surfaces of Spinel $MgAl_2O_4$ ☆ Chang Ming Fang, Gijsbertus de With, and Stephen C. Parker 1553
Oxidation Behavior of Silicon-Infiltrated Carbon/Carbon Composites in High-Enthalpy Convective Environment ☆ Toshio Ogasawara and Takashi Ishikawa 1559
Multiple Cracking and Tensile Behavior for an Orthogonal 3-D Woven Si-Ti-C-O Fiber/Si-Ti-C-O Matrix Composite ☆ Toshio Ogasawara, Takashi Ishikawa, Hiroshi Ito, Naoyuki Watanabe, and Ian J. Davies 1565
Preparation of Synthetic Cordierite by Solid-State Reaction via Bismuth Oxide Flux ☆ Maria Teresa Malachevsky, Jorge Eduardo Fiscina, and Daniel Antonio Esparza 1575

Microstructure and Phase Equilibria
Microstructural Evolution in Liquid-Phase-Sintered SiC: Part I, Effect of Starting Powder ☆ Huiwen Xu, Tania Bhatia, Swarnima A. Deshpande, Nitin P. Padture, Angel L. Ortiz, and Francisco L. Cumbrera 1578
Microstructural Evolution in Liquid-Phase-Sintered SiC: Part II, Effects of Planar Defects and Seeds in the Starting Powder ☆ Swarnima A. Deshpande, Tania Bhatia, Huiwen Xu, Nitin P. Padture, Angel L. Ortiz, and Francisco L. Cumbrera 1585
Effect of Silica Additive on the Anatase-to-Rutile Phase Transition ☆ Kiyoshi Okada, Nobuo Yamamoto, Yoshikazu Kameshima, Atsuo Yasumori, and Kenneth J. D. MacKenzie 1591
Effect of Liquid Content on the Abnormal Grain Growth of Alumina ☆ Seong-Hyeon Hong and Doh-Yeon Kim 1597
Effect of Composition and Crystallization Temperature on Microstructure of Y- and Er-SiAlON I_w-Phase Glass-Ceramics ☆ Ian MacLaren, Lena K. L. Falk, Aranzazu Díaz, and Stuart Hampshire 1601
Mechanism of the Cubic-to-Tetragonal Phase Transition in Zirconia and Yttria-Stabilized Zirconia by Molecular-Dynamics Simulation ☆ Patrick K. Schelling, Simon R. Phillpot, and Dieter Wolf 1609
Impurity-Dependent Morphology and Grain Growth in Liquid-Phase-Sintered Alumina ☆ Amiya P. Goswami, Sukumar Roy, Manoj K. Mitra, and Gopes C. Das 1620
Role of Structural Fe(III) and Iron Oxide Nanophases in Mullite Coloration ☆ Amédée Djemai, Georges Calas, and Jean Pierre Muller 1627
Microstructure Characterizations in Calcium Magnesium Niobate ☆ Hwack Joo Lee, Hyun Min Park, Yang Koo Cho, Yong Won Song, Sahn Nahm, and Jae-Dong Byun 1632

Communications
Differences between Zirconium Hydroxide ($Zr(OH)_4 \cdot nH_2O$) and Hydrous Zirconia ($ZrO_2 \cdot nH_2O$) ☆ Chuanyong Huang, Zilong Tang, and Zhongtai Zhang 1637
Fabrication of Low-Shrinkage, Porous Silicon Nitride Ceramics by Addition of a Small Amount of Carbon ☆ Jian-Feng Yang, Guo-Jun Zhang, and Tatsuki Ohji 1639
Effects of Intergranular Phase Chemistry on the Microstructure and Mechanical Properties of Silicon Carbide Ceramics Densified with Rare-Earth Oxide and Alumina Additions ☆ You Zhou, Kiyoshi Hirao, Motohiro Toriyama, Yukihiko Yamauchi, and Shuzo Kanzaki 1642
Grain-Size Effect on Compressive Creep of Silicon-Carbide-Whisker-Reinforced Aluminum Oxide ☆ Antonio R. de Arellano-López, Juan J. Meléndez-Martínez, Arturo Domínguez-Rodríguez, Jules L. Routbort, Hua-Tay Lin, and Paul F. Becher 1645
Strontium Zirconate and Strontium Titanate Ceramics for High-Voltage Applications: Synthesis, Processing, and Dielectric Properties ☆ Rajesh V. Shende, Daniel S. Krueger, George A. Rossetti Jr., and Stephen J. Lombardo 1648
Synthesis of α-SiAlON Seed Crystals ☆ Misha Zenotchkine, Roman Shuba, Joo Sun Kim, and I-Wei Chen 1651
Improvement in the Strut Thickness of Reticulated Porous Ceramics ☆ Xinwen Zhu, Dongliang Jiang, Shouhong Tan, and Zhaoquan Zhang 1654

August [8]
Articles
Processing Science
Sintering Behavior and Electrical Properties of Nanosized Doped-ZnO Powders Produced by Metallorganic Polymeric Processing ☆ Pedro Durán, Francisco Capel, Jesús Tartaj, and Carlos Moure 1661
Catalytic Effects of Metals on Direct Nitridation of Silicon ☆ Varong Pavarajarn and Shoichi Kimura 1669
Silicon Nitride Colloidal Probe Measurements: Interparticle Forces and the Role of Surface-Segment Interactions in Poly(acrylic acid) Adsorption from Aqueous Solution ☆ Eric Laarz, Anders Meurk, Joseph A. Yanez, and Lennart Bergström 1675
Nanofiber Formation in the Fabrication of Carbon/Silicon Carbide Ceramic Matrix Nanocomposites by Slurry Impregnation and Pulse Chemical Vapor Infiltration ☆ Nyan-Hwa Tai and Che-Fu Chen 1683
Mechanical Properties of Coagulated Wet Particle Networks with Alkali-Swellable Thickeners ☆ Daniels Hesselbarth, Elena Tervoort, C. Urban, and Ludwig J. Gauckler 1689
Hydrothermal Synthesis of Nanosized Titania Powders: Influence of Tetraalkyl Ammonium Hydroxides on Particle Characteristics ☆ Juan Yang, Sen Mei, and José M. F. Ferreira 1696

Mullite–β-Spodumene Composites from Aluminosilicates ☆ Ammini Yamuna, Sankaranarayanan Devanarayanan, and Malathi Lalithambika 1703
Dispersion and Slip Casting of Hydroxyapatite ☆ R. Ramachandra Rao and Thandali S. Kannan 1710
Optical Spectra of Nickel-Bearing Silicate Gels Prepared by the Geopolymer Technique, with Special Reference to the Low-Temperature Formation of Liebenbergite (Ni_2SiO_4) ☆ Ko Ikeda, Kyoichi Onikura, Yoshinori Nakamura, and Swaroop Vedanand 1717
Control of Synthesis Conditions to Improve Zirconia Microspheres for Ultrafast Chromatography ☆ Bingwen Yan, Clayton V. McNeff, Fang Chen, Peter W. Carr, and Alon V. McCormick 1721
Effect of the Presence of Ammonium Peroxodisulfate on the Direct Precipitation of Ceria and Ceria–Zirconia Solid Solutions from Acidic Aqueous Solutions ☆ Masanori Hirano, Toshio Miwa, and Michio Inagaki 1728
In Situ Rheological Investigation of the Coagulation in Aqueous Alumina Suspensions ☆ Beate Balzer, Martin K. M. Hruschka, and Ludwig J. Gauckler 1733

Electric and Dielectric Properties

Morphotropic Phase Boundary in the $Pb(Zn_{1/3}Nb_{2/3}O_3)$–$BaTiO_3$–$PbTiO_3$ System ☆ Weizhong Zhu, Andrei L. Kholkin, Pedro Q. Mantas, and Joao L. Baptista 1740
Revisit to the Origin of Grain Growth Anomaly in Yttria-Doped Barium Titanate ☆ Jung-Kun Lee, Kug-Sun Hong, and Jang-Hoon Chung 1745
Electrical Properties of Cerium-Doped $BaTiO_3$ ☆ Jin Hyun Hwang and Young Ho Han 1750

Mechanical, Thermal, and Chemical Properties

Ferroelastic and Plastic Deformation of t'-Zirconia Single Crystals ☆ Dietmar Baither, Martin Bartsch, Bernd Baufeld, Aleksander Tikhonovsky, Andreas Foitzik, Manfred Rühle, and Ulrich Messerschmidt 1755
Chromium Oxycarbide Thin Films Prepared by Inductively Coupled Radio-Frequency Plasma-Assisted Magnetron Sputtering ☆ Tetsuo Kado and Qiulin Fan 1763
Wet Erosive Wear of Alumina Densified with Magnesium Silicate Additions ☆ Dušan Galusek, Rik Brydson, Peter C. Twigg, Frank L. Riley, Alan Atkinson, and Yan-Hui Zhang 1767
Diffusion of ^{110m}Ag Tracer in Polycrystalline and Single-Crystal Lead-Containing Piezoelectric Ceramics ☆ Daniel J. Lewis, Devendra Gupta, Michael R. Notis, and Yoshihiko Imanaka 1777
Raman Microprobe Evaluation of Bridging Stresses in Highly Anisotropic Silicon Nitride ☆ Giuseppe Pezzotti, Hiroyuki Ichimaru, Luca Paolo Ferroni, Kiyoshi Hirao, and Orfeo Sbaizero 1785
High-Temperature Fracture Energy of Superplastically Forged Silicon Nitride ☆ Naoki Kondo, Yoshiaki Inagaki, Yoshikazu Suzuki, and Tatsuki Ohji 1791
Limitations of the Augis and Bennett Method for Kinetic Analysis of the Crystallization of Glasses and Conditions for Correct Use ☆ Francisco J. Gotor, José M. Criado, and Jiri Málek 1797
Oxidation Kinetics of an Amorphous Silicon Carbonitride Ceramic ☆ Rishi Raj, Linan An, Sandeep Shah, Ralf Riedel, Claudia Fasel, and Hans-Joachim Kleebe 1803
State of Water in Hydrating Tricalcium Silicate and Portland Cement Pastes as Measured by Quasi-Elastic Neutron Scattering ☆ Jeffrey J. Thomas, Stephen A. FitzGerald, Dan A. Neumann, and Richard A. Livingston 1811
Effect of Cation Doping on the Superplastic Flow in Yttria-Stabilized Tetragonal Zirconia Polycrystals ☆ Junpei Mimurada, Manabu Nakano, Kazutaka Sasaki, Yuichi Ikuhara, and Taketo Sakuma 1817
Compressive Creep Performance of $SrFeO_3$ ☆ Kjersti Kleveland, Andrew Wereszczak, Timothy P. Kirkland, Mari-Ann Einarsrud, and Tor Grande 1822
Flaw-Insensitive Ion-Exchanged Glass: I, Theoretical Aspects ☆ Vincenzo M. Sglavo, Luca Larentis, and David J. Green ... 1827
Flaw-Insensitive Ion-Exchanged Glass: II, Production and Mechanical Performance ☆ Vincenzo M. Sglavo and David J. Green 1832
Origin of Gas Porosity in Gold-Based Alloys Cast in Calcium Sulfate-Bonded Investment and Influence of Metal Oxide Acid–Base Properties on Calcium Sulfate Thermal Stability ☆ Gabriel Maria Ingo, Cristina Riccucci, and Gianni Chiozzini 1839
Micromechanics of Deformation in Porous Liquid-Phase-Sintered Alumina under Hertzian Contact ☆ Anthony A. DiGiovanni, Helen M. Chan, Martin P. Harmer, and Herman F. Nied 1844

Microstructure and Phase Equilibria

Nucleation and Crystallization of New Glasses from Fly Ash Originating from Thermal Power Plants ☆ Luisa Barbieri, Isabella Lancellotti, Tiziano Manfredini, Gian Carlo Pellacani, Jesus Ma. Rincòn, and Maximina Romero 1851
Effect of Oxidation State of Iron on Phase Separation in Sodium Silicate Glasses ☆ Jun-Sik Jeoung, W. Howard Poisl, Michael C. Weinberg, Gary L. Smith, and Hong Li 1859
Grain Growth Phenomena in the Interface Region of α-Alumina Bilayer Composites ☆ Hong Zhao, Xiao-Zhi Hu, and Mark B. Bush 1865
Effect of Rapid Solidification on Microstructural Evolution in MgO–$MgAl_2O_4$ ☆ Tania Bhatia, Kamanio Chattopadhyay, and Vikram Jayaram 1873
Thermodynamic Modeling of the Isomorphous Phase Diagrams in the Al_2O_3–Cr_2O_3 and V_2O_3–Cr_2O_3 Systems ☆ Sung S. Kim and Thomas H. Sanders, Jr. 1881
Preferred Grain Orientation Relationships in Sintered Perovskite Ceramics ☆ Frank Ernst, Maureen L. Mulvihill, Oliver Kienzle, and Manfred Rühle 1885
Microstructure in Silicon Nitride Containing β-Phase Seeding: III, Grain Growth and Coalescence ☆ Horng-Hwa Lu and Jow-Lay Huang 1891
Influence of Diaspore Seeding and Chloride Concentration on the Transformation of "Diasporic" Precursors to Corundum ☆ Richard L. Smith, Gregory S. Rohrer, and Anthony J. Perrotta 1896

Communications

A Simple and Cost-Effective Approach to Fabrication of Dense Ceramic Membranes on Porous Substrates ☆ Changrong Xia and Meilin Liu 1903
Yttrium Aluminum Garnet (YAG) Films through a Precursor Plasma Spraying Technique ☆ Sujatha D. Parukuttyamma, Joshua Margolis, Haiming Liu, Clare P. Grey, Sanjay Sampath, Herbert Herman, and John B. Parise 1906

High-Resolution Transmission Electron Microscopy Observations on Antiphase Boundaries in Barium Lanthanum Magnesium Niobate ☆ Hwack Joo Lee, Hyun Min Park, Yong Won Song, Yang Koo Cho, and Sahn Nahm 1909

September [9]

Articles

Processing Science

Preparation of Highly Oriented Aluminum Nitride Thin Films on Polycrystalline Substrates by Helicon Plasma Sputtering and Annealing ☆ Morito Akiyama, Chao-Nan Xu, Masaya Kodama, Ichiro Usui, Kazuhiro Nonaka, and Tadahiko Watanabe ... 1917

Single-Source Sol–Gel Synthesis of Nanocrystalline $ZnAl_2O_4$: Structural and Optical Properties ☆ Sanjay Mathur, Michael Veith, Michel Haas, Hao Shen, Nicolas Lecerf, Volker Huch, Stefan Hüfner, Robert Haberkorn, Horst P. Beck, and Mohammad Jilavi 1921

Spheroidization of Titanium Carbide Powders by Induction Thermal Plasma Processing ☆ Ya-Li Li and Takamasa Ishigaki .. 1929

Grain Boundaries of Semiconducting $SrTiO_3$ and $BaTiO_3$ Ceramics Synthesized from Surface-Coated Powders ☆ Myung-Beom Park and Nam-Hee Cho 1937

Fabrication of Continuous-SiC-Fiber-Reinforced SiAlON-Based Ceramic Composites by Reactive Melt Infiltration ☆ Satoshi Kitaoka, Naoki Kawashima, Toshiyuki Suzuki, Yuji Sugita, Nobuo Shinohara, and Takashi Higuchi 1945

Modeling the Kinetics of Volatilization from Glass Melts ☆ Ruud G. C. Beerkens 1952

X-ray Tomography Study on Green State Joining of Silicon Carbide Using Polymer Precursors ☆ Jing Zheng, Scott P. Beckman, Joe N. Gray, and Mufit Akinc 1961

Phase Separation in Sol–Gel Process of Alkoxide-Derived Silica–Zirconia in the Presence of Polyethylene Oxide ☆ Ryoji Takahashi, Satoshi Sato, Toshiaki Sodesawa, Kei Suzuki, Masamoto Tafu, Kazuki Nakanishi, and Naohiro Soga 1968

Influence of Acidity on the Stability and Rheological Properties of Ionically Stabilized Alumina Suspensions in Ethanol ☆ Gonghou Wang and Patrick S. Nicholson 1977

Temperature Measurements during Microwave Processing: The Significance of Thermocouple Effects ☆ Evan Pert, Yuval Carmel, Amikam Birnboim, Tayo Olorunyolemi, David Gershon, Jeff Calame, Isabel K. Lloyd, and Otto C. Wilson Jr. 1981

Synthesis of Pure and Manganese-, Nickel-, and Zinc-Doped Ferrite Particles in Water-in-Oil Microemulsions ☆ Doruk O. Yener and Herbert Giesche 1987

Electric and Dielectric Properties

High-Temperature Proton Conductors for the Injection of Hydrogen into a Vacuum ☆ Tilman Schober and Paul Meuffels 1996

Roles of Ba/Ti Ratios in the Dielectric Properties of $BaTiO_3$ Ceramics ☆ Jung-Kun Lee, Kug-Sun Hong, and Jin-Wook Jang 2001

Electrical Conductivity and Lattice Defects in Nanocrystalline Cerium Oxide Thin Films ☆ Toshio Suzuki, Igor Kosacki, Harlan U. Anderson, and Philippe Colomban 2007

Mechanical, Thermal, and Chemical Properties

Effects of Matrix Cracks on the Thermal Diffusivity of a Fiber-Reinforced Ceramic Composite ☆ Kathleen R. McDonald, John R. Dryden, and Frank W. Zok 2015

Flexural Creep of an *in Situ*-Toughened Silicon Carbide ☆ Mark E. Sixta, Xiao Feng Zhang, and Lutgard C. De Jonghe 2022

Ferroelastic Behavior of $LaCoO_3$-Based Ceramics ☆ Kjersti Kleveland, Nina Orlovskaya, Tor Grande, Anne Marie Mardal Moe, Mari-Ann Einarsrud, Kristin Breder, and George Gogotsi 2029

Processing and Mechanical Properties of Al_2O_3/Ni_3Al Composites with Interpenetrating Network Microstructure ☆ Siegfried Skirl, Ralph Krause, Sheldon M. Wiederhorn, and Jürgen Rödel 2034

Bonelike Apatite Formation Induced on Zirconia Gel in a Simulated Body Fluid and Its Modified Solutions ☆ Masaki Uchida, Hyun-Min Kim, Tadashi Kokubo, Fumiaki Miyaji, and Takashi Nakamura 2041

Effect of Dynamic Microstructural Change on Deformation Behavior in Liquid-Phase-Sintered Silicon Carbide with Al_2O_3–Y_2O_3–CaO Additions ☆ Takayuki Nagano, Hui Gu, Kenji Kaneko, Guo-Dong Zhan, and Mamoru Mitomo 2045

Crack Growth along Interfaces in Porous Ceramic Layers ☆ Bent F. Sørensen and Andy Horsewell 2051

Heat-Resistant Silicon Carbide with Aluminum Nitride and Erbium Oxide ☆ Young-Wook Kim, Mamoru Mitomo, and Toshiyuki Nishimura 2060

Interaction of Gamma Rays with Calcium Aluminoborate Glasses Containing Holmium or Erbium ☆ Hatem A. El-Batal, Moenis A. Azooz, Fathy M. Ezz-El-Din, and Nagia A. El-Alaily 2065

Crack-Healing Behavior Under Stress of Mullite/Silicon Carbide Ceramics and the Resultant Fatigue Strength ☆ Kotoji Ando, Kotokaze Furusawa, Min Cheol Chu, Tsuyoshi Hanagata, Kiichi Tuji, and Shigemi Sato 2073

Temperature Dependence of Tensile Strength for a Woven Boron-Nitride-Coated Hi-Nicalon™ SiC Fiber-Reinforced Silicon-Carbide-Matrix Composite ☆ Shuqi Guo and Yutaka Kagawa 2079

Thermal Stability of Lanthanum Zirconate Plasma-Sprayed Coating ☆ X. Q. Cao, R. Vassen, W. Jungen, S. Schwartz, F. Tietz, and D. Stöver 2086

Microstructure and Phase Equilibria

Direct Compositional Analysis of Ordered Domains in Pure and La-Doped $Pb(Mg_{1/3}Nb_{2/3})O_3$ by Analytical Electron Microscopy Techniques ☆ Shu Miao, Xiaowen Zhang, and Jing Zhu 2091

Electron-Beam-Induced Phase Transformations from Metakaolinite to Mullite Investigated by EF-TEM and HRTEM ☆ Sujeong Lee, Youn Joong Kim, Hwack Joo Lee, and Hi-Soo Moon 2096

Nucleation Energy Barriers for Volume-Conserving Shape Changes of Crystals with Nonequilibrium Morphologies ☆ Gregory S. Rohrer, C. Lane Rohrer, and William W. Mullins 2099

Microstructure and Dielectric Properties of Barium Strontium Magnesium Niobate ☆ Hwack Joo Lee, Hyun Min Park, Yong Won Song, Yang Koo Cho, Sahn Nahm, and Jae-Dong Byun 2105

Detection of Phase Separation by FTIR in a Liquid-Crystal-Display Substrate Aluminoborosilicate Glass ☆ Yoshinari Kato, Hiroki Yamazaki, and Minoru Tomozawa 2111

Communications

Chemical Expansivity of Electrochemical Ceramics ☆ Stuart B. Adler 2117

Hot Isostatic Pressing of Chromium Nitrides (Cr_2N and CrN) Prepared by Self-Propagating High-Temperature Synthesis ☆ Ken Hirota, Yoshihiko Takano, Masaru Yoshinaka, and Osamu Yamaguchi 2120
Gel-to-Ceramic Conversion during Hydroxyapatite Synthesis ☆ Ming-Fa Hsieh, Tsung-Shune Chin, Li-Hsiang Perng, and Huann-Guang Perng 2123
Dielectric Properties of Lead Magnesium Niobate and Lead Iron Niobate Prepared by the Semiwet Hydroxide Route ☆ Dhirendra Mohan, Ram Prasad, and Srikumar Banerjee 2126
Colloidal Processing and Ionic Conductivity of Fine-Grained Cupric-Oxide-Doped Tetragonal Zirconia ☆ Yoshio Sakka, Kiyoshi Ozawa, Tetsuo Uchikoshi, and Keijiro Hiraga 2129
Effect of Ultrasonication on the Microstructure and Tensile Elongation of Zirconia-Dispersed Alumina Ceramics Prepared by Colloidal Processing ☆ Tohru S. Suzuki, Yoshio Sakka, Keishi Nakano, and Keijiro Hiraga 2132
Hydroxyapatite Coating on Thermally Oxidized Titanium Substrates ☆ Minkmas Vatanatham and Shoichi Kimura 2135
Effect of Particle Volume Fraction on the Gelation Behavior of the Temperature Induced Forming (TIF) Aqueous Alumina Suspensions ☆ Yunpeng Yang and Wolfgang M. Sigmund 2138
Shrinkage Behavior of Knoop Indentations in Silica and Soda–Lime–Silica Glasses ☆ Satoshi Yoshida, Shigemi Isono, Jun Matsuoka, and Naohiro Soga 2141
Ceramic Membrane Filter Using Ultrafine Powders ☆ Yoshiaki Kinemuchi, Tsuneo Suzuki, Weihua Jiang, and Kiyoshi Yatsui 2144
Point Defect Concentrations in Barium Titanate Revisited ☆ Yoed Tsur and Clive A. Randall 2147
Phase Equilibria in the Lead–Magnesium–Niobium–Oxygen System at 1000°C ☆ Pierre Lucas and William T. Petuskey 2150

October [10]

Topical Issue—Ultrahigh-Temperature Ceramics

Sol–Gel-Derived Silicon-Boron Oxycarbide Glasses Containing Mixed Silicon Oxycarbide (SiC_xO_{4-x}) and Boron Oxycarbide (BC_yO_{3-y}) Units ☆ Christel Gervais, Florence Babonneau, Nicola Dallabonna, and Gian Domenico Sorarù ... 2160
In Situ Densification Behavior in the Pyrolysis Consolidation of Amorphous Si-N-C Bulk Ceramics from Polymer Precursors ☆ Julin Wan, Matthew J. Gasch, and Amiya K. Mukherjee 2165
Crystallization Behavior of Amorphous Silicon Carbonitride Ceramics Derived from Organometallic Precursors ☆ Yuji Iwamoto, Wolfgang Völger, Edwin Kroke, Ralf Riedel, Tomohiro Saitou, and Katsuyuki Matsunaga 2170
Novel Silicon-Boron-Carbon-Nitrogen Materials Thermally Stable up to 2200°C ☆ Zhi-Chang Wang, Fritz Aldinger, and Ralf Riedel 2179
Precursor-Derived Si-B-C-N Ceramics: Oxidation Kinetics ☆ Elke Butchereit, Klaus G. Nickel, and Anita Müller 2184
Transmission Electron Microscopy and Electron Energy-Loss Spectroscopy Study of Nonstoichiometric Silicon-Carbon-Oxygen Glasses ☆ Christian Turquat, Hans-Joachim Kleebe, G. Gregori, Steffen Walter, and Gian D. Sorarù 2189
Characterization of Oxidized Polymer-Derived SiBCN Fibers ☆ Michael K. Cinibulk and Triplicane A. Parthasarathy 2197
Fracture Toughness of Amorphous Precursor-Derived Ceramics in the Silicon–Carbon–Nitrogen System ☆ Arndt Bauer, Martin Christ, Andre Zimmermann, and Fritz Aldinger 2203
Nanoscale Densification Creep in Polymer-Derived Silicon Carbonitrides at 1350°C ☆ Sandeep R. Shah and Rishi Raj 2208
Molecular Dynamics Study of Atomic Structure and Diffusion Behavior in Amorphous Silicon Nitride Containing Boron ☆ Katsuyuki Matsunaga and Yuji Iwamoto 2213
Surface Damage Resistance of Gel-Derived Oxycarbide Glasses: Hardness, Toughness, and Scratchability ☆ Tanguy Rouxel, Jean-Christophe Sangleboeuf, Jean-Pierre Guin, Vincent Keryvin, and Gian-Domenico Soraru 2220
Local Viscosity of Si-O-C-N Nanoscale Amorphous Phases at Ceramic Grain Boundaries ☆ Giuseppe Pezzotti 2225
Transverse Thermal Conductivity of Thin C/SiC Composites Fabricated by Slurry Infiltration and Pyrolysis ☆ Min Z. Berbon, Donald R. Dietrich, David B. Marshall, and D. P. H. Hasselman 2229
A Process for C_f/SiC Composites Using Liquid Polymer Infiltration ☆ Zbigniew S. Rak 2235
Stresses Occurring during Joining of Ceramics Using Preceramic Polymers ☆ Charles A. Lewinsohn, Paolo Colombo, Ivar Reimanis, and Özer Ünal 2240
Mechanical Properties of Silicon Oxycarbide Ceramic Foams ☆ Paolo Colombo, John R. Hellmann, and David L. Shelleman 2245
Micro-/Macroporous Ceramics from Preceramic Precursors ☆ Harald Schmidt, Dietmar Koch, Georg Grathwohl, and Paolo Colombo 2252
Electrical Characterization of Polymethylsiloxane/$MoSi_2$-Derived Composite Ceramics ☆ Jens Cordelair and Peter Greil 2256
Structure and Electronic Transport Properties of Si-(B)-C-N Ceramics ☆ Allen M. Hermann, Yao-Te Wang, Padmanabhan A. Ramakrishnan, Davor Balzar, Linan An, Cristoph Haluschka, and Ralf Riedel 2260
Conductive Ceramic Foams from Preceramic Polymers ☆ Paolo Colombo, Tatiana Gambaryan-Roisman, Michael Scheffler, Peter Buhler, and Peter Greil 2265

Articles

Processing Science

Partially Reduced Cuprous Oxide Nanoparticles Formed in Porous Glass Reaction Fields ☆ Norio Murase and Tetsuo Yazawa 2269
Effect of Solids Loading and Dispersant Concentration on Strain Mismatch and Deformation of Slip-Cast Green Bodies ☆ John D. Yates and Stephen J. Lombardo 2274
In Situ Neutron Powder Diffraction Study of Ti_3SiC_2 Synthesis ☆ Erdong Wu, Erich H. Kisi, Shane J. Kennedy, and Andrew J. Studer 2281
Catalytic and Electrochemical Properties of Doped Lanthanum Chromites as New Anode Materials for Solid Oxide Fuel Cells ☆ Philippe Vernoux, Elisabeth Djurado, and Michael Guillodo 2289
Theoretical Investigation of Heat Transfer in Glass Forming ☆ Raymond Viskanta and Jong Mook Lim 2296
Formation Mechanism of Hydrous Zirconia Particles Produced by the Hydrolysis of $ZrOCl_2$ Solutions: III, Kinetics Study for the Nucleation and Crystal-Growth Processes of Primary Particles ☆ Koji Matsui and Michiharu Ohgai 2303
Microwave-Hydrothermal Synthesis of Monodispersed Nanophase α-Fe_2O_3 ☆ Hiroaki Katsuki and Sridhar Komarneni 2313

Hydrothermal Treatment of a Silica Sand Complex with Lime ☆ Osamu Watanabe, Kazuko Kitamura, Hiroki Maenami, and Hideki Ishida 2318
Fabrication of Lanthanum Manganese Oxide Thin Films on Yttria-Stabilized Zirconia Substrates by a Chemically Modified Alkoxide Method ☆ Hae Jin Hwang, Atsuya Towata, and Masanobu Awano 2323

Electric and Dielectric Properties
Volume Fraction and Whisker Orientation Dependence of the Electrical Properties of SiC-Whisker-Reinforced Mullite Composites ☆ Rosario A. Gerhardt and Robert Ruh 2328
Electrical Properties of Boron Nitride Matrix Composites: III, Observations near the Percolation Threshold in BN–B_4C Composites ☆ Rosario A. Gerhardt, Julie Runyan, Catherine Sana, David S. McLachlan, and Robert Ruh 2335

Mechanical, Thermal, and Chemical Properties
Rheological Properties of Cement-Based Extrudates with Fibers ☆ Zongjin Li and Bin Mu 2343
Strength-Limiting Surface Damage in Single-Crystal Sapphire Imaged by X-ray Topography ☆ David Black 2351
Ytterbium Cation Diffusion in Yttrium Aluminum Garnet (YAG)—Implications for Creep Mechanisms ☆ Manuel Jiménez-Melendo, Hajime Haneda, and Hoshiteru Nozawa 2356
Morphology of Vickers Indent Flaws in Soda–Lime–Silica Glass ☆ Ben R. Whittle and Russell J. Hand 2361
Low-Frequency Measurements on the Grain-Boundary Internal Friction Peak in Chlorine-Doped Silicon Nitride ☆ Giuseppe Pezzotti 2366
Grain-Boundary Viscosity of Preoxidized and Nitrogen-Annealed Silicon Carbides ☆ Giuseppe Pezzotti, Hans-Joachim Kleebe, Hitoshi Nishimura, and Ken'ichi Ota 2371
Effect of Flaw State on the Strength of Brittle Coatings on Soft Substrates ☆ Hae-Won Kim, Yan Deng, Pedro Miranda, Antonia Pajares, Do Kyung Kim, Hyoun-Ee Kim, and Brian R. Lawn 2377
Damage Evolution and Stress Analysis in Zirconia Thermal Barrier Coatings during Cyclic and Isothermal Oxidation ☆ Jitendra P. Singh, Balakrishnan G. Nair, Daniel P. Renusch, Manish P. Sutaria, and Marcus H. Grimsditch 2385
Tensile Creep Behavior of a Gas-Pressure-Sintered Silicon Nitride Containing Silicon Carbide ☆ Ralph F. Krause Jr., Sheldon M. Wiederhorn, and Chien-Wei Li 2394
Unusual Elastic and Mechanical Behaviors of Copper Phosphate Glasses with Different Copper Valence States ☆ Tadashi Miura, Toshio Watanabe, Yasuhiko Benino, Takayuki Komatsu, and Ryuji Sato 2401
Structural Control of Elastic Constants of Mullite in Comparison to Sillimanite ☆ Bernd Hildmann, Hassel Ledbetter, Sudook Kim, and Hartmut Schneider 2409

Microstructure and Phase Equilibria
Phase Equilibria in the Hafnia–Yttria–Lanthana System ☆ Elena R. Andrievskaya and Lidiya M. Lopato 2415

Communications
Nanocrystalline α-Al_2O_3 Using Sucrose ☆ Rabindra N. Das, Amit Bandyopadhyay, and Susmita Bose 2421
Densification Behavior in Microwave-Sintered Silicon Nitride at 28 GHz ☆ Mark I. Jones, Maria-Cecilia Valecillos, Kiyoshi Hirao, and Motohiro Toriyama 2424
Visualization of Knoop Indentation Damage of Silicon Nitride by Plasma Etching ☆ Wataru Kanematsu, Tatsuya Miyajima, and Mutsuo Sando 2427
Silicon Nitride/Molybdenum Disilicide Composite with Superior Long-Term Oxidation Resistance at 1500°C ☆ Hagen Klemm and Christian Schubert 2430
Effect of Neodymium:Yttrium Aluminum Garnet Laser Irradiation on Crystallization in Li_2O–Al_2O_3–SiO_2 Glass ☆ Yong Su Lee, Won Ho Kang, Byeoung Il Kim, and Sun Dal Song 2433
Lead Zirconate Titanate Thin Films on Base-Metal Foils: An Approach for Embedded High-Permittivity Passive Components ☆ Jon-Paul Maria, Kevin Cheek, Stephen Streiffer, Seung-Hyun Kim, Greg Dunn, and Angus Kingon 2436
Evidence of Nearest-Neighbor Ordering in Wet-Processed Zirconia–Nickel Composites ☆ Carlos Pecharromán, Sonia López-Esteban, José F. Bartolomé, and José S. Moya 2439
Separate Growth of α- and β-Si_3N_4 Whiskers on or near a Carbon Substrate by Carbothermal Reduction ☆ Shiro Shimada and Tomoyuki Kataoka 2442
Mechanical Properties of CoAl Materials with the Combined Additions of ZrO_2(3Y) and Al_2O_3 ☆ Yoshihiko Takano, Masaru Yoshinaka, Ken Hirota, and Osamu Yamaguchi 2445
Thermal and Electrical Properties in Plasma-Activation-Sintered Silicon Carbide with Rare-Earth-Oxide Additives ☆ Guo-Dong Zhan, Mamoru Mitomo, Rong-Jun Xie, and Amiya K. Mukherjee 2448
Experimental Observations of High Fracture Resistance in Silicon Carbide/Alumina Laminated Composites ☆ Ramanthan Krishnamurthy and Brian W. Sheldon 2451
Direct Evidence for Low-Density Regions in Compacted Spray-Dried Powders ☆ Yutaka Saito, Satoshi Tanaka, Nozomu Uchida, and Keizo Uematsu 2454

November [11]
Articles
Processing Science
Direct-Write Fabrication of Pb(Nb,Zr,Ti)O_3 Devices: Influence of Paste Rheology on Print Morphology and Component Properties ☆ Sherry L. Morissette, Jennifer A. Lewis, Paul G. Clem, Joseph Cesarano III, and Duane B. Dimos 2462
Sintering Behavior and Surface Microstructure of PbO-Rich $PbNi_{1/3}Nb_{2/3}O_3$–$PbTiO_3$–$PbZrO_3$ Ceramics ☆ Masao Kondo and Kazuaki Kurihara 2469
Effect of pH on the Chemistry of the Barium Titanium Citrate Gel and Its Thermal Decomposition Behavior ☆ Tsang-Tse Fang and Jenq-Dar Tsay 2475
Green State Joining of SiC without Applied Pressure ☆ Jing Zheng and Mufit Akinc 2479
Nonisothermal Synthesis of Yttria-Stabilized Zirconia Nanopowder through Oxalate Processing: II, Morphology Manipulation ☆ Oleg Vasylkiv, Yoshio Sakka, and Hanna Borodians'ka 2484
Synthesis and Colloidal Processing of Zirconia Nanopowder ☆ Oleg Vasylkiv and Yoshio Sakka 2489
Structural and Property Evolution of Aqueous-Based Lead Zirconate Titanate Tape-Cast Layers ☆ James E. Smay and Jennifer A. Lewis 2495

Competitive Adsorption Phenomena in Nonaqueous Tape Casting Suspensions ☆ Kim Blackman, Rita M. Slilaty, and Jennifer A. Lewis 2501
Kinetics of Templated Grain Growth of $0.65Pb(Mg_{1/3}Nb_{2/3})O_3$-$0.35PbTiO_3$ ☆ Edward M. Sabolsky, Gary L. Messing, and Susan Trolier-McKinstry 2507
Ink-Jet Printing of Wax-Based Alumina Suspensions ☆ Kitty A. M. Seerden, Nuno Reis, Julian R. G. Evans, Patrick S. Grant, John W. Halloran, and Brian Derby 2514
Rapid Preparation of Lead Titanate Sputtering Target Using Spark-Plasma Sintering ☆ Tomonari Takeuchi, Masao Takahashi, Kazuaki Ado, Nobuyuki Tamari, Kiyoshi Ichikawa, Shinichi Miyamoto, Masakazu Kawahara, Mitsuharu Tabuchi, and Hiroyuki Kageyama 2521
Effect of Silica Surface Dopants on the Formation of Alumina/Aluminum Composites by the Directed Metal Oxidation of an Aluminum Alloy ☆ Hong Sik Park and Do Kyung Kim 2526
Hydrothermal Synthesis and Formation Mechanisms of Lanthanum Tin Pyrochlore Oxide ☆ Jooho Moon, Masanobu Awano, and Kunihiro Maeda 2531
Aqueous Processing of Titanium Carbide Green Sheets ☆ Jing-Xian Zhang, Dong-Liang Jiang, Shou-Hong Tan, Lin-Hua Gui, and Mei-Ling Ruan 2537

Electric and Dielectric Properties

Effect of Nb_2O_5/ZnO Addition on Microwave Properties of $(Zr_{0.8}Sn_{0.2})TiO_4$ Ceramics ☆ Yong Hwan Park, Ji Man Ryu, Moo Young Shin, Kyung Hyun Ko, Dong Wan Kim, and Kug-Sun Hong 2542
Processing, Characterization, and Dielectric Studies on $K(Ta_{1-x}Nb_x)O_3$ for Use at Cryogenic Temperatures ☆ Cristopher B. DiAntonio and Stephen M. Pilgrim 2547
Effect of Phosphorus Ions on the Proton Conductivity in the Sol–Gel-Derived Porous Glasses ☆ Masayuki Nogami, Yoichi Goto, Yasushi Tsurita, and Toshihiro Kasuga 2553
Phase Relations and Dielectric Properties in the Bi_2O_3–ZnO–Ta_2O_5 System ☆ Hyuk-Joon Youn, Tomohiro Sogabe, Clive A. Randall, Tom R. Shrout, and Michael T. Lanagan 2557
Estimation of the Effective d_{31} Coefficients of the Piezoelectric Layer in Rainbow Actuators ☆ Robert W. Schwartz, L. Eric Cross, and Qing Ming Wang 2563
Microwave Dielectric Properties of $(1-x)(Al_{1/2}Ta_{1/2})O_2$–$x(Mg_{1/3}Ta_{2/3})O_2$ Ceramics ☆ Ji-Won Choi, Sergey Kucheiko, Seok-Jin Yoon, Hyun-Jai Kim, and Ki Hyun Yoon 2570

Mechanical, Thermal, and Chemical Properties

Thermal Expansion Behavior of Titanium-Doped La(Sr)CrO_3 Solid Oxide Fuel Cell Interconnects ☆ Masashi Mori and Yoshiko Hiei 2573
Tribological Properties of Unidirectionally Aligned Silicon Nitride ☆ Masateru Nakamura, Kiyoshi Hirao, Yukihiko Yamauchi, and Shuzo Kanzaki 2579
Measurement of Very Slow Crack Growth in Glass ☆ Cenk Kocer and Richard E. Collins 2585
Effects of Matrix Porosity on the Mechanical Properties of a Porous-Matrix, All-Oxide Ceramic Composite ☆ Michael A. Mattoni, James Y. Yang, Carlos G. Levi, and Frank W. Zok 2594
Role of Internal Friction in Indentation Damage in a Mica-Containing Glass-Ceramic ☆ Anthony C. Fischer-Cripps 2603
Oxygen Transport in Silica at High Temperatures: Implications of Oxidation Kinetics ☆ C. Eric Ramberg and Wayne L. Worrell 2607
High-Temperature Rheology of Calcium Aluminosilicate (Anorthite) Glass-Ceramics under Uniaxial and Triaxial Loading ☆ Balakrishnan G. Nair, Reid F. Cooper, David Bruhn, and David L. Kohlstedt 2617
Compression Creep Characteristics of 8-mol%-Yttria-Stabilized Cubic-Zirconia ☆ B. Sudhir and Atul H. Chokshi 2625
Structure Models for γ-Aluminum Oxynitride from *Ab Initio* Calculations ☆ Chang Ming Fang, Rudi Metselaar, Hubertus T. Hintzen, and Gijsbertus de With 2633
Microstructure and Mechanical Properties of Porous Alumina Ceramics Fabricated by the Decomposition of Aluminum Hydroxide ☆ Zhen-Yan Deng, Takayuki Fukasawa, Motohide Ando, Guo-Jun Zhang, and Tatsuki Ohj 2638

Microstructure and Phase Equilibria

Computer Simulations of Diffraction Effects due to Stacking Faults in β-SiC: II, Experimental Verification ☆ Vijay V. Pujar and James D. Cawley 2645
Effect of NiO-to-Ni Transformation on Conductivity and Structure of Yttria-Stabilized ZrO_2 ☆ Søren Linderoth, Nikolaos Bonanos, Karin V. Jensen, and Jørgen B. Bilde-Sørensen 2652
Structure and Chemistry of Basal-Plane Inversion Boundaries in Antimony Oxide-Doped Zinc Oxide ☆ Aleksander Rečnik, Nina Daneu, Thomas Walther, and Werner Mader 2657
Processing and Properties of Ti(C,N)–WC-Based Materials ☆ Alida Bellosi, Valentina Medri, and Frédéric Monteverde 2669
Oxide–Oxide Interfaces: Atomistic and Density Functional Study of Cubic-ZrO_2 (100) ‖ NiO (111) ☆ Chang-Xin Guo, Oliver Warschkow, Donald E. Ellis, Vinayak P. Dravid, and Elizabeth C. Dickey 2677
Determination of Positions of Zeolitic Calcium Atoms and Water Molecules in Hydrothermally Formed Aluminum-Substituted Tobermorite-1.1nm Using Synchrotron Radiation Powder Diffraction Data ☆ Satoru Yamazaki and Hideo Toraya 2685
Crystallization of Lead Niobate Glass by Mechanical Activation ☆ Junmin Xue and John Wang 2691

Communications

Fluid Dynamics and Thermal Aspects of the Dewatering of High-Alumina Refractory Castables: Removal of Physically Absorbed Water ☆ Murilo D. M. Innocentini, Caue Ribeiro, Luis R. M. Bittencourt, and Victor C. Pandolfelli 2696
Solubility of Gases in Vitreous Silica Described by a Distribution of Dissolution Energies ☆ Reiner Kirchheim 2699
Incorporation of Aliovalent Dopants into the Bismuth-Layered Perovskite-Like Structure of $BaBi_4Ti_4O_{15}$ ☆ Darko Makovec, Irena Pribošic, Zoran Samardžija, and Miha Drofenik 2702
Preparation of Zirconia Whiskers from Zirconium Hydroxide in Sulfuric Acid Solutions under Hydrothermal Conditions at 200°C ☆ Yoshio Murase and Etsuro Kato 2705
Positive Temperature Coefficient of Resistance Effect in Heavily Niobium-Doped Barium Titanate by the Growth of the Double-Twinned Seeds ☆ Bo-Kyung Park, Jong-Heun Lee, Doh-Yeon Kim, and Nong-Moon Hwang 2707

Effect of Magnesium Ions on the Adsorption of Poly(acrylic acid) onto Alumina ☆ Jing Sun, Lennart Bergström, and Lian Gao 2710
In Situ Processing of a Porous Calcium Zirconate/Magnesia Composite with Platinum Nanodispersion and Its Influence on Nitric Oxide Decomposition ☆ Yoshikazu Suzuki, Hae Jin Hwang, Naoki Kondo, and Tatsuki Ohji 2713
Sol–Gel Synthesis of Silica-Based Oxyfluoride Glass-Ceramic Thin Films: Incorporation of Eu^{3+} Activators into Crystallites ☆ Shinobu Fujihara, Takayoshi Kato, and Toshio Kimura 2716
Effect of Tangential Loading on Critical Conditions for Radial Cracking in Brittle Coatings ☆ Chul-Seung Lee, Brian R. Lawn, and Do Kyung Kim 2719
Residual Stress Induced *R*-Curves in Laminar Ceramics That Exhibit a Threshold Strength ☆ Masa P. Rao, Jürgen Rödel, and Fred F. Lange 2722
Synthesis of Calcium Hexaboride Powder via the Reaction of Calcium Carbonate with Boron Carbide and Carbon ☆ Shuqi Zheng, Guanghui Min, Zengda Zou, Huashun Yu, and Jiande Han 2725
Microwave-Hydrothermal Synthesis of Nanocrystalline Zirconia Powders ☆ Federica Bondioli, Anna Maria Ferrari, Cristina Leonelli, Cristina Siligardi, and Gian Carlo Pellacani 2728
Low-Temperature Aging of Zirconia Ferrules for Optical Connectors ☆ Michael J. Lance, Eva M. Vogel, Leslie A. Reith, and W. Roger Cannon 2731
Scavenging of Siliceous Grain-Boundary Phase of 8-mol%-Ytterbia-Stabilized Zirconia without Additive ☆ Jong-Heun Lee, Toshiyuki Mori, Ji-Guang Li, Takayasu Ikegami, John Drennan, and Doh-Yeon Kim 2734
Mesoscopic Nonlinear Elastic Modulus of Thermal Barrier Coatings Determined by Cylindrical Punch Indentation ☆ Jeffrey I. Eldridge, Dongming Zhu, and Robert A. Miller 2737
Comment on "Influence of Fe^{3+}/Fe^{2+} Ratio on the Crystallization of Iron-Rich Glasses Made with Industrial Wastes" ☆ Chandra S. Ray 2740
Reply to "Comment on 'Influence of Fe^{3+}/Fe^{2+} Ratio on the Crystallization of Iron-Rich Glasses Made with Industrial Wastes'" ☆ Mario Pelino and Alexander Karamanov 2742

December [12]

Articles

Processing Science

Effect of Polymer Crystallinity on Morphology in Ceramic Injection Molding ☆ Steffen Krug, Julian R. G. Evans, and Johan H. H. ter Maat 2750
Cosintering Simulation and Experimentation: Case Study of Nanocrystalline Zirconia ☆ Johannes Kanters, Ulrich Eisele, and Jürgen Rödel 2757
Synthesis of Hard Materials by Field Activation: The Synthesis of Solid Solutions and Composites in the TiB_2–WB_2–CrB_2 System ☆ Hisashi Kaga, Ellen M. Heian, Zuhair A. Munir, Clemens Schmalzried, and Rainer Telle 2764
Nanocrystalline Zirconia Surface-Doped with Alumina: Chemical Vapor Synthesis, Characterization, and Properties ☆ Vladimir V. Srdić, Markus Winterer, Andreas Möller, G. Miehe, and Horst Hahn 2771
Solid-State Preparation of $BaTiO_3$-Based Dielectrics, Using Ultrafine Raw Materials ☆ Detlev F. K. Hennings, B. Seriyati Schreinemacher, and Herbert Schreinemacher 2777
Monazite Coatings on Fibers: I, Effect of Temperature and Alumina Doping on Coated-Fiber Tensile Strength ☆ Randall S. Hay and Emmanuel E. Boakye 2783
Monazite Coatings on Fibers: II, Coating without Strength Degradation ☆ Emmanuel E. Boakye, Randall S. Hay, Pavel Mogilevsky, and L. M. Douglas 2793
Packaging of Sol–Gel-Made Porous Nanostructured Titania Particles by Spray Drying ☆ Jinsoo Kim, Oliver Wilhelm, and Sotiris E. Pratsinis 2802
Strength of Green Ceramics with Low Binder Content ☆ Scott A. Uhland, Richard K. Holman, Sherry Morissette, Michael J. Cima, and Emanuel M. Sachs 2809
Alumina/NiCu Laminate under Thermal Shock up to 1000°C: I, Experimental ☆ Dov Sherman 2819
Alumina/NiCu Laminate under Thermal Shock up to 1000°C: II, Prediction of the Laminate Behavior ☆ Dov Sherman 2827
Effects of Boehmite-Coating Thickness on the Consolidation and Rheological Properties of Boehmite-Coated SiC Suspensions ☆ Chia-Yi Yang, Wan Y. Shih, and Wei-Heng Shih 2834
Growth of Tetragonal Zirconia Coatings by Reactive Sputter Deposition ☆ Zhiqiang Ji and J. M. Rigsbee 2841
Secondary Ion Mass Spectroscopy Study of Oxygen-18 Tracer Diffusion in 2/1-Mullite Single Crystals ☆ Peter Fielitz, Günter Borchardt, Martin Schmücker, Hartmut Schneider, Michael Wiedenbeck, Dieter Rhede, Sylvian Weber, and Stanislas Scherrer 2845
Synthesis of Nanocrystalline α-Alumina Powder Using Triethanolamine ☆ Ranjan K. Pati, Jagadish C. Ray, and Panchanan Pramanik 2849
Translucent Polycrystalline Alumina with Improved Resistance to Sodium Attack ☆ George C. Wei, Arlene Hecker, and David A. Goodman 2853

Electric and Dielectric Properties

Processing and Properties of Screen-Printed Lead Zirconate Titanate Piezoelectric Thick Films on Electroded Silicon ☆ Erik S. Thiele, Dragan Damjanovic, and Nava Setter 2863
Synthesis of Lead Nickel Niobate–Lead Zirconate Titanate Solid Solutions by a B-site Precursor Method ☆ Gilles Robert, Marlyse Demartin Maeder, Dragan Damjanovic, and Nava Setter 2869
Consequence of Nanometer-Scale Property Variations to Macroscopic Properties of CrOCN Thin Films ☆ Jackson Smith, Roger H. French, Gerd Duscher, and Dawn Bonnell 2873
Processing and Properties of Strontium Bismuth Vanadate Niobate Ferroelectric Ceramics ☆ Yun Wu, Chau Nguyen, Seana Seraji, Mike J. Forbess, Steven J. Limmer, Tammy Chou, and Guozhong Cao 2882
Low-Temperature Sintering, Densification, and Properties of Z-type Hexaferrite with Bi_2O_3 Additives ☆ Hongguo Zhang, Longtu Li, Ji Zhou, Zhenxing Yue, and Zhilun Gui 2889
Conductivity Measurement Using Four Linear Electrodes Embedded Inside a Rectangular Sample ☆ Ilan Riess, Jeremy Rutman, and Zvi Rosenstock 2895
Processing and Dielectric Properties of Sillenite Compounds $Bi_{12}MO_{20-8}$ (M = Si, Ge, Ti, Pb, Mn, $B_{1/2}P_{1/2}$) ☆ Matjaz Valant and Danilo Suvorov 2900

Effect of the Magnetostrictive Layer on Magnetoelectric Properties in Lead Zirconate Titanate/Terfenol-D Laminate Composites ☆ Jungho Ryu, Shashank Priya, Alfredo Vázquez Carazo, Kenji Uchino, and Hyoun-Ee Kim 2905

Mechanical, Thermal, and Chemical Properties

Properties of Portland Cement Pastes Incorporating Nanometer-Sized Franklinite Particles Obtained from Electric-Arc-Furnace Dust ☆ Antonio Balderas, Hugo Navarro, Luisa Maria Flores-Velez, and Octavio Dominguez 2909

Cyclic Fatigue-Crack Growth and Fracture Properties in Ti_3SiC_2 Ceramics at Elevated Temperatures ☆ Da Chen, Kiroshi Shirato, Michel W. Barsoum, Tamer El-Raghy, and Robert O. Ritchie 2914

Contribution from Ferroelastic Domain Switching Detected Using X-ray Diffraction to *R*-Curves in Lead Zirconate Titanate Ceramics ☆ Alexandre E. Glazounov, Hans Kungl, Jan-Thorsten Reszat, Michael J. Hoffmann, Arnd Kolleck, Gerold A. Schneider, and Thomas Wroblewski 2921

Thermal Decomposition of Zircon Refractories ☆ Robert S. Pavlik Jr., Hans J. Holland, and E. Andrew Payzant 2930

Distributed Porosity as a Control Parameter for Oxide Thermal Barriers Made by Physical Vapor Deposition ☆ Tian Jian Lu, Carlos G. Levi, Haydn N. G. Wadley, and Anthony G. Evans 2937

Residual-Stress Predictions in Polycrystalline Alumina ☆ Venkata R. Vedula, S. Jill Glass, David M. Saylor, Gregory S. Rohrer, W. Craig Carter, Stephen A. Langer, and Edwin R. Fuller Jr. 2947

Analyses of Multiple Film Cracking in Film/Substrate Systems ☆ Chun-Hway Hsueh 2955

Residual Stresses in Alumina/Zirconia Composites: Effect of Cooling Rate and Grain Size ☆ Enrico Merlani, Chiara Schmid, and Valter Sergo 2962

Apatite-Forming Ability of Sodium-Containing Titania Gels in a Simulated Body Fluid ☆ Masaki Uchida, Hyun-Min Kim, Tadashi Kokubo, and Takashi Nakamura 2969

Oxidation of Low-Oxygen Silicon Carbide Fibers (Hi-Nicalon) in Carbon Dioxide ☆ Toshio Shimoo, Takehiro Morita, and Kiyohito Okamura 2975

Strain Hardening in Superplastic Codoped Yttria-Stabilized Tetragonal-Zirconia Polycrystals ☆ Kazutaka Sasaki, Manabu Nakano, Junpei Mimurada, Yiichi Ikuhara, and Taketo Sakuma 2981

Enthalpies of Chromium Oxide Solution in Soda Lime Borosilicate Glass Systems ☆ Cheon-Woo Kim, Kwansik Choi, Jong-Kil Park, Sang-Woon Shin, and Myung-Jae Song 2987

Coarsening of Lamellar Microstructures in Directionally Solidified Yttrium Aluminate/Alumina Eutectic Fiber ☆ Deok-Yong Park, Jenn-Ming Yang, and Joseph M. Collins 2991

Mechanism of Thermal Transport in Zirconia and Yttria-Stabilized Zirconia by Molecular-Dynamics Simulation ☆ Patrick K. Schelling and Simon R. Phillpot 2997

Microstructure and Phase Equilibria

Measurements of Chloride Activity Coefficients in Real Portland Cement Paste Pore Solutions ☆ Ana Hidalgo, Guillem De Vera, Miguel A. Climent, Carmen Andrade, and Cruz Alonso 3008

Phase Relationship between 3C- and 6H-Silicon Carbide at High Pressure and High Temperature ☆ Shin Sugiyama and Motohiro Togaya 3013

Aqueous Solubility Diagrams for Cementitious Waste Stabilization Systems: II, End-Member Stoichiometries of Ideal Calcium Silicate Hydrate Solid Solutions ☆ Dmitrii A. Kulik and Michael Kersten 3017

Effect of Liquid Volume Fraction on Grain Growth of Magnesium Oxide Grains in Molten Calcium Magnesium Silicate Matrix ☆ Jeong-Joo Kim and Martin P. Harmer 3027

Microstructural Characteristics of Strontium Magnesium Niobate ☆ Hwack Joo Lee, Hyun Min Park, Yang Koo Cho, Yong Won Song, Sahn Nahm, and Jae-Dong Byun 3032

Communications

C_{60} Nanowhiskers in a Mixture of Lead Zirconate Titanate Sol–C_{60} Toluene Solution ☆ Kun'ichi Miyazawa, Akio Obayashi, and Makoto Kuwabara 3037

Effect of β-Seed Addition on the Microstructural Evolution of Silicon Nitride Ceramics ☆ Sang-Hoon Rhee, Jae Do Lee, and Doh-Yeon Kim 3040

Hercynite-Free Ceramic Liner for Composite Steel Pipe Made Using a Self-Propagating High-Temperature Synthesis Gravitational-Thermite Process ☆ Shuang-Xi Wang, Kai-Ming Liang, Shou-Ren Gu, and Xian-Hui Zhang 3043

Synthesis of Nanocrystalline Titanium Nitride Powders by Direct Nitridation of Titanium Oxide ☆ Jingguo Li, Lian Gao, Jing Sun, Qinghong Zhang, Jingkun Guo, and Dongsheng Yan 3045

Egg White as an Environmentally Friendly Low-Cost Binder for Gelcasting of Ceramics ☆ Santanu Dhara and Parag Bhargava 3048

Synthesis of Ternary Titanium Aluminum Carbides Using Self-Propagating High-Temperature Synthesis Technique ☆ Michał Łopaciński, Jan Puszynski, and Jerzy Lis 3051

Chromium-Free Corrosion Resistance of Metals by Ceramic Coating ☆ Satomi Ono, Yasuo Nishi, and Shin-ichi Hirano 3054

Preparation of Dense Lead Magnesium Niobate–Lead Titanate ($Pb(Mg_{1/3}Nb_{2/3})O_3$–$PbTiO_3$) Ceramics by Spark Plasma Sintering ☆ Jong-Keuk Park, Ui-Jin Chung, Nong M. Hwang, and Doh-Yeon Kim 3057

$MgSiN_2$ Addition as a Means of Increasing the Thermal Conductivity of β-Silicon Nitride ☆ Hiroyuki Hayashi, Kiyoshi Hirao, Motohiro Toriyama, Shuzo Kanzaki, and Kiyoshi Itatani 3060

Instructions for the Preparation of Papers 3063

Author Index 3067

Subject Index 3079